

THE IRON AGE

New York, Thursday, June 20, 1907.

The Logemann Hydraulic Pipe and Shaft Straightener.

Makeshifts that may answer for infrequent jobs of straightening iron and steel pipes, shafts, rods and axles, are too laborious and expensive to be practicable where much of such work is done. Then it can be economically performed only by tools especially designed for the work, of which the hydraulic pipe and shaft straightener shown in the accompanying illustrations is an example. It is made by the Logemann Brothers Company, 280-290 Oregon street, Milwaukee, Wis., and embodies improvements that add materially to its effectiveness and efficiency.

The machine, which is designated as 17-B, is prac-

To avoid the necessity of adjusting the wedge blocks or shoes beneath the piece under treatment at each successive application of pressure, flexible lathe centers are used, one of which is shown in Fig. 3. These centers have two principal parts, one provided with a sleeve fitted to the centering spindle and the other carrying the centering pin. The face plates of the two sections are joined together by bolts which pass through slots in the inner plate, thus permitting them to be offset with respect to each other. Three spring bolts with hardened steel conical heads extend through the back plate and project into round shouldered openings in the front plate, supporting it in position with the circumferences normally coinciding. Downward pressure of the ram on a piece held between these centers depresses the inner centering plate, which, acting upon the conical surfaces of

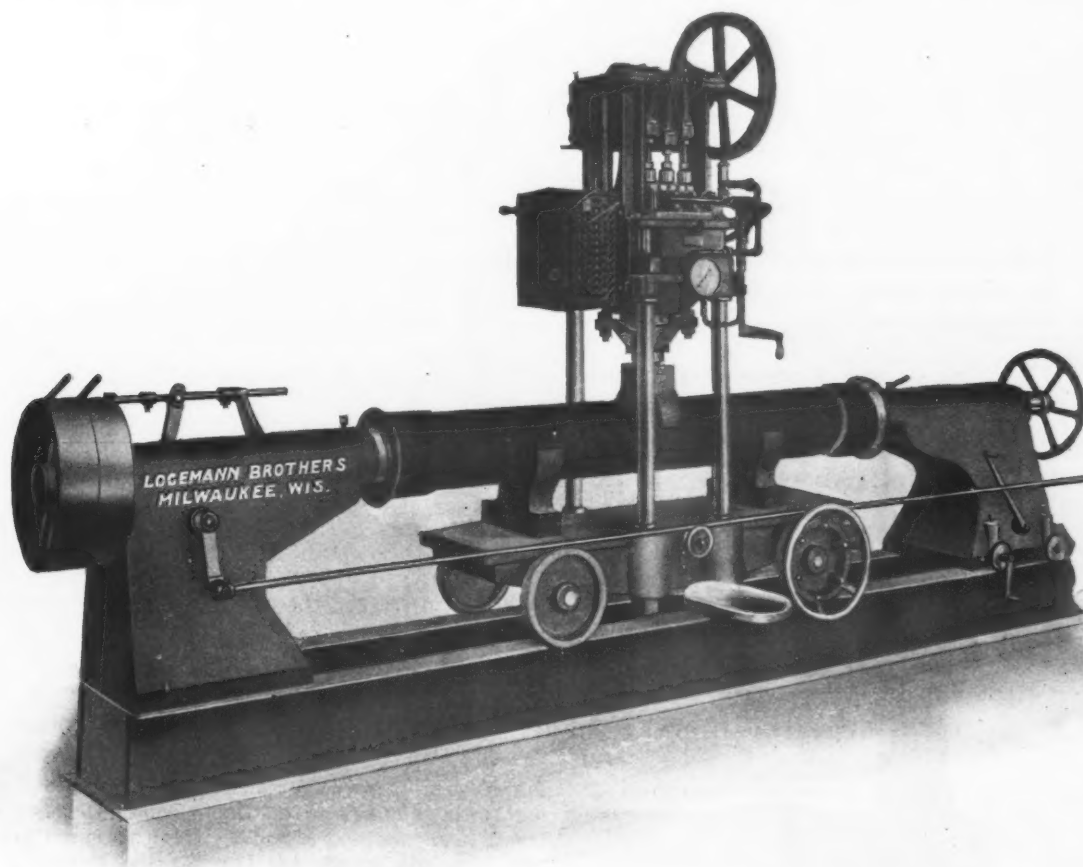


Fig. 1.—The 17-B Hydraulic Pipe and Shaft Straightener Built by the Logemann Brothers Company, Milwaukee, Wis.

tically a lathe and hydraulic press combined, on a single bed made of I beams. The piece to be straightened is held on centers as in an ordinary lathe, and to allow the ram to be brought in contact with the extreme ends of the work, both the head and the tail stocks are deeply undercut. The work is revolved by the belt driven head stock spindle, which is fitted with a tight and a loose pulley. A rod extending across the front of the machine is connected by a rocker arm and a shaft extending through the head stock to the belt shifter. This rod is supported by a grooved wheel attached to the pump carriage, and is at all times within easy reach of the operator. The tail stock is mounted on wheels and is moved along the bed by a hand crank fitted to one of the wheel axles. When a piece is properly centered for straightening, the tail stock is fixed in position by raising the wheels, thus allowing the stock to rest firmly on the bed frame. The lever shown on the side of the tail stock in Fig. 1 is employed for this purpose.

the bolt heads, forces them backward against the springs like the latch of a spring lock. When the pressure is relieved the bolts are thrust forward by the force of the springs, thus bringing the centers back into position. One advantage of this arrangement is that when not under pressure clearance between the shoes and the work is automatically maintained. It is therefore not necessary to release the piece from the lathe for each operation of the ram, and no readjustment of the shoes is required. The shoes are of sufficient height to take all the strains of pressure incident to the straightening process, none being sustained by the lathe centers. By reference to the line drawing, Fig. 2, the position of the spring bolts in the elastic lathe centers can be seen, one of which is shown in outline in the upper part of each centering head.

The hydraulic ram is operated by a triple cylinder plunger pump, motor driven through spur gears, and is mounted on four rod columns rising from the bed of the carriage. The ram is of machinery steel 8 in. in diam-

eter, and designed for a capacity of 125 tons pressure, which, it is stated, will straighten 9 in. solid shafts or 12 in. pipe. The pump cylinders and plungers are made of hydraulic bronze and the hydraulic cylinder is of cast steel lined with brass. When the pumps are running idle the water or oil used for operating the ram circulates freely through a bypass valve at the rear of the reservoir. By closing this valve, which is controlled by a lever within easy reach of the operator, the discharge of the pumps is directed into the ram cylinder, forcing the ram downward with a powerful pressure. A gauge in plain view of the attendant indicates the pressure, which can be released at any point by opening the bypass valve.

The carriage and its superstructure are necessarily

shown in the illustrations. The links being uncoupled to admit the piece are replaced and fastened with pins when the work is in position.

The machine illustrated has a greatest length between centers of 24 ft., and the bed is 32 ft. long over all. With the machine are furnished two sets of wedge taper blocks and ram extensions, one set each of cast steel pipe shoes bored to fit 6, 7, 8, 9, and 10 in. pipe, together with the necessary lathe centers, elastic centers and pipe centering attachments.

Between New York and Chicago the air line distance is less than 700 miles. By the shortest rail route at present, the Pennsylvania, the distance is 911 miles; by the

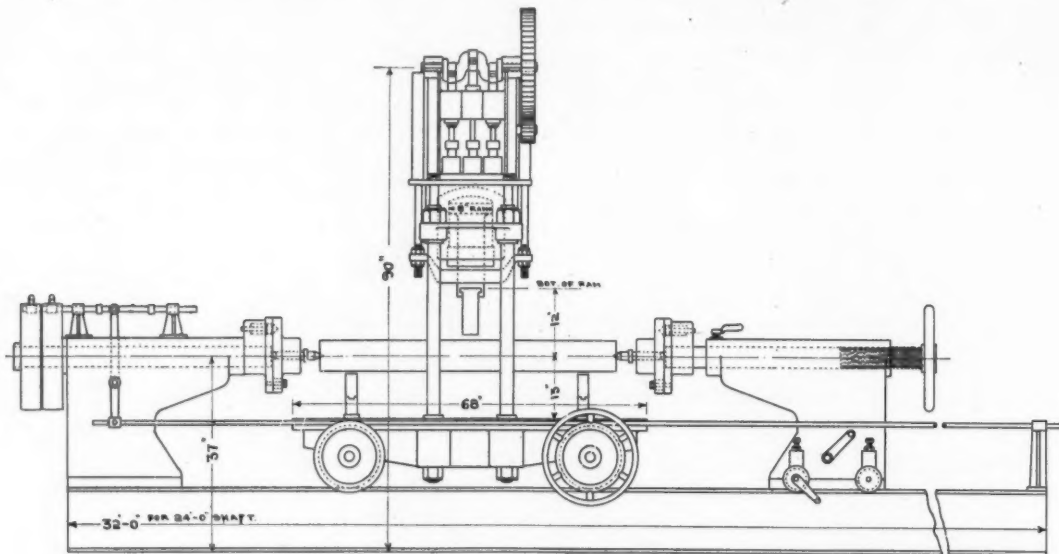


Fig. 2.—Front Elevation of the Logemann Hydraulic Pipe and Shaft Straightener.

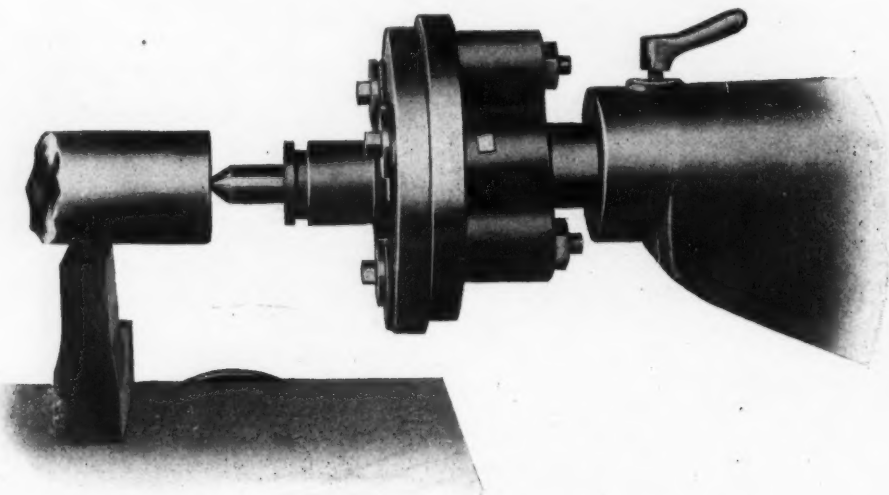


Fig. 3.—The Flexible or Floating Center for Supporting the Work.

heavy, since they must resist the pressure in straightening; the bed frame sustains only the weight of the carriage and its equipment. A seat for the operator is attached to the carriage, from which he can control all of the movements of the machine. For shifting the carriage along the bed frame, there is a hand wheel connected to one wheel of the carriage and the ram is thus brought to the point where the deflection of the piece to be straightened is greatest. Being mounted on roller bearings the press is easily moved.

For straightening pipe, conical head centers with sockets fitting the lathe spindles are substituted for the center pins shown in Fig. 3, which are used only for solid shafts. The pipe centers are selfcentering and require no adjustment. Pieces of irregular shape, such as crank shafts or pipe having large flanges, or couplings, may be handled in the machine by substituting supporting rods provided with detachable links in place of the solid posts

next shortest, the New York Central lines, it is 960 miles. The *Railway Age* suggests the possibility that the fastest trains between New York and Chicago may at some time leave Buffalo and Pittsburgh out of the account. The Pennsylvania is buying its right of way for a new line which will make a short cut from its lines east of Pittsburgh to its lines west. By constructing about 30 miles of road to connect existing branches it may have a new route from Tipton, near Altoona, via Mayport and Red Bank to Enon, on the Fort Wayne line, which will save 14 miles and avoid heavy grades and the congestion of Pittsburgh terminals. The New York Central when it completes the costly Clearfield-Franklin line of 107 miles, provided that from Williamsport to New York, over 300 miles, it uses the Reading-Jersey Central tracks or acquires a line of its own, may save some 80 miles over the Albany-Buffalo route and also reduce the New York-Chicago distance to less than 900 miles.

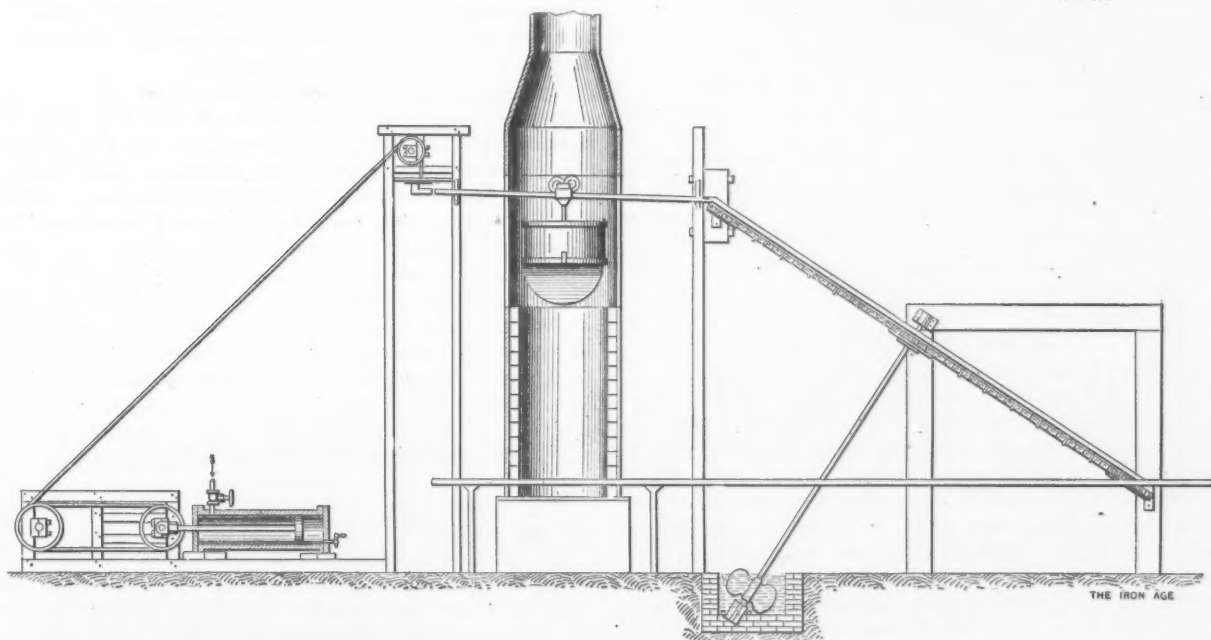
The Knight Cupola Charging Apparatus.

One of the most laborious and usually inefficient operations in connection with a foundry is the charging of the cupolas. Hoists of one form or another have been devised to raise the materials forming the charge to the charging platform, but few attempts have been made to make the actual charging of them into the cupola a mechanical process, after the manner of charging blast furnaces. The illustration herewith is of an entirely mechanical cupola charging equipment, invented by Sherwood S. Knight, Huntington, W. Va.

The device consists of the usual trolley track, either of I-beam or flat iron, running upon the level of the foundry yard, and a hoisting device working in connection with this trolley track so that the charging bucket can be raised from the level, where it is loaded, to the level of the trolley track which runs through the cupola, a little above the charging floor. The sides of the cupola are cut out to allow the bucket to enter, and the only difference between the ordinary cupola and the special one required for the use of this charging bucket is that the latter has large triangular doors, affording an opening in the cupola shell that is narrower at the top and wider

it reaches the level of the foundry yard track. The hoisting device for raising the charging bucket up the inclined track may be of any nature, from a direct acting hoist to a rope arrangement such as shown.

There are several advantages in this method of handling the stock from the foundry yard to the cupola. In the first place, by using in connection with this device two buckets for coke, three for pig iron, and two for scrap iron, it is claimed the ordinary foundry would save 50 per cent. in the labor required. The disadvantages of automatic chargers such as are in use to-day and which cause the stock to hit the brick lining in falling, are avoided, and the charge is as uniformly mixed as though it were introduced by hand. A number of buckets filled with material may be held in readiness upon storage tracks upon the level of the cupola platform track and by means of switches delivered when needed, so as to keep the cupola filled to the level of the charging doors all of the time. With this system it is necessary that the cupola be kept filled all of the time while the blast is on, so that the heat will not become intense enough to perceptibly diminish the transverse strength of the rails forming that part of the track which passes through the cupola. When the charging has been finished and while



A Cupola Charging Equipment Designed by S. S. Knight, Huntington, W. Va.

at the bottom, to allow the bucket to enter. The bucket when inside the cupola extends to within 6 in. of the inside of the brick lining. When in position the sectional drop bottom is released and the charge dropped. The opening for the bucket necessitates cutting away the cupola shell to quite an extent, consequently in the larger sizes of cupolas it undoubtedly will be necessary to reinforce the side of the cupola with 4 in. I-beams riveted to the shell around the door openings. The doors are of the usual type, made of screen wire.

The bucket itself is suspended from the trolley by scales, so that it may be taken from pile to pile and the right amount of each part of the charge weighed as it is put in. When the bucket has been run into the cupola and the sectional bottom released the charge drops straight downward and is as uniform and as well mixed as though it had been charged by hand.

The retarding device for allowing the buckets to return by gravity, from the level of the cupola charging floor track to that of the foundry yard track, can be of any convenient form. The one shown is as simple as could easily be devised, being only a shaft rigidly attached to two vanes turning in a small well of either water or oil. Any friction brake would be equally applicable and efficient. A sprocket on the shaft engages a chain which carries fingers. The latter retard the trolley as it starts downward on the incline and release it when

the stock is still practically level with the charging doors, this rail is withdrawn and the doors closed.

For a 72-in. cupola these charging buckets represent an investment of some \$50 each, while the entire system as installed by the ordinary foundry would not cost more than \$1000, providing flat iron track is used. Where it is desirable to use larger charges, as is done in a great many of the large foundries, the track should be made of 6 or 8-in. I-beams, which, of course, proportionately increase the cost of installation. The ordinary foundry melting 40 tons a day has a cost for cupola labor of from 40 to 50 cents a ton. Under this system the cost, it is claimed, would be reduced about one-half.

The Carlyle Johnson Machine Company, Hartford, Conn., manufacturer of friction clutches, has received an order for the Stuyvesant High School, New York, for 113 of its clutches, their purpose being to operate machinery directly from the line shaft.

Reports that the Girard Iron Company, operating Mattie Furnace at Girard, Ohio, would build a number of finishing mills at that place are officially denied. The company recently bought some more ground adjacent to the furnace, but definite plans for the use of this property have not been made.

Iron Ore and Water Power in Ontario.

TORONTO, June 15, 1907.—On June 6 the fifth report of the Hydro-Electric Power Commission of Ontario was made public. As it pertains to the Algoma, Thunder Bay and Rainy River districts it is of more interest to mining men and metallurgists than were its four predecessors, which dealt with the water powers of areas less conspicuous for their mineral resources. The Algoma, Thunder Bay and Rainy River districts abound in iron ore, much of which is of low grade and of high sulphur content. To give the highest utility to this ore it seems necessary that some method other than the present blast furnace practice be applied. There is a general hope that the special method required has now been made available by the results of the Sault Ste. Marie experiments in thermo-electric smelting. As Dr. Haanel's recently issued report seems to establish the practicability of this method—given low priced electrical energy—and as this report of the Hydro-Electric Power Commission is positive as to the abundance and cheapness of power in the fields of low grade sulphurous iron ores, it looks as if capital had adequate official assurance to warrant its venturing rather freely into the electrical smelting of New Ontario iron ores.

Algoma and Thunder Bay.

Speaking generally, all the important water powers lying within the zone of influence of the Canadian Pacific, the Algoma Central and the Canadian Northern railroads were examined in detail by the commission's engineers, but the information obtained concerning remoter power resources south of the hight of land is more general. Two drainage areas are included—that emptying into Lake Huron, and that to the west of this. While the present demand for power is capable of turning to account but an insignificant part of the power resources in that great region, the chief engineer is convinced that the demand will grow to great proportions. He emphasizes the fact that the whole district is mineralized, particularly with iron ores, and that it has enormous tracts of pulp timber yet untouched. He confidently predicts that, with improvements in the methods of electrical smelting and with advances in the price of pulp, these water powers will form a more than ordinary important factor in the development of the territory. Of the rivers flowing into Lake Huron along the North Shore, the Spanish, Vermilion and Mississauga are the most important, both in size and hydro-electric possibilities, each having numerous water powers admitting of more or less economical development. Blind, Sable, Serpent, Onaping and Whitefish are rivers of less importance. At the head of Lake Huron is the international power of the Sault Ste. Marie rapids, which is partially developed on both banks, and applied to industries operated by the Lake Superior Corporation. There are many fine water powers along the North Shore of Lake Superior, notably those on the Nepigon, Kaministiquia and Current rivers, all of which have power markets close at hand, Fort William and Port Arthur being convenient to the best heads on the Kaministiquia and Current rivers.

On the Spanish River eight water powers are shown, ranging from 580 to 10,145 hp. Of these two are developed, one by the Spanish River Pulp & Paper Company, the other by the Canada Copper Company. The former has an installation of 10,000 hp. and the latter one of 5400 hp. The Spanish River Pulp & Paper Company's plant is at Espanola. The power station of the Canada Copper Company is at Turbine, on High Falls, and energy is transmitted thence 22 miles to the company's works at Copper Cliff. Two additional units of 2700 hp. each are to be installed this year, making a total installment of 10,800 hp.

On the Vermilion River nine power sites are indicated, the least important having a minimum capacity of 313 hp., and the most important having a minimum capacity of 2750 hp. At the Big Stoby Falls the Vermilion River Power Company has a development of 1350 hp. At present this plant is not in operation. It is within transmission distance of Victoria Mines, Copper Cliff and Sudbury.

On the Onaping River there are five power centers, their capacity varying from 147 to 3460 hp. There are no developments on this stream. Similarly undeveloped are power sites on numerous small rivers.

The most important developments, in addition to those already mentioned, are the following: The Lake Superior Power Company at Sault Ste. Marie; Algoma Power Company at Michipicoten Falls; the City of Port Arthur on Current River, and the Kaministiquia Power Company at Kakebeka Falls on the Kaministiquia. The Lake Superior Power Company has a turbine capacity of 6500 hp., the Port Arthur plant develops 800 hp., the Kaministiquia Power Company has an installation of 10,000 hp., which is shortly to be doubled, the Algoma Power Company's plant, which is not yet finished, is to have an initial capacity of 2100 hp.

Only by the Soo Rapids are the water powers of the Nepigon exceeded. The greatest rapids on the Nepigon have an estimated capacity of 19,500 hp., and the smallest has one of 3500 hp. Passing through an iron ore region, this stream's power resources should be certain of early development.

Power developed at Dog Lake would cost per annum at the stepdown transformer station in Port Arthur \$9.10 per hp., the day being 24 hr. Developed at Slate Falls, it would cost \$14.72 per horsepower, stepped down at Bruce Mines. These are the estimates of the commission.

Rainy River.

The Rainy River District of Ontario is the most copiously watered of any portion of the Province, and the powers are both numerous and in many cases important. On the Rainy, Winnipeg, Seine, Wabigoon and English there are points destined by their sharp changes in water level to be industrial centers. At Fort Frances, on the Koochieling Falls of the Rainy River, there is an international power development like those on the other border streams, Ste. Marie River and Niagara River. At present the mineral areas of the district are not being worked to any large extent, but their resources are likely to furnish a use for some of the more conveniently located water powers.

C. A. C. J.

New Bristol Recording Voltmeters.

The construction of the type 8 recording voltmeter, made by the Bristol Company, Waterbury, Conn., is such that it may be used on either direct current or on alternating current of any frequency. It operates on the principle of an electric balance obtained without permanent magnets, and the coils are wound noninductively, having no iron in their construction. The essential parts are the two coils mounted side by side, one stationary and the other pivoted on knife edges. The pen, which receives its motion from the movable coil, makes the record in ink upon a revolving chart. Great care has been taken to reduce the friction so that the instrument will respond to slight variations in voltage, and an inappreciable amount of energy will be consumed in operating it.

The instruments are made in two forms, one for switchboard installation and the other for portable use. The switchboard form is contained in a bronze case similar to those used for the familiar Bristol recording instruments and is finished as may be required to match other switchboard equipment. The portable form is mounted in a light wooden carrying case, and its metal parts are made of aluminum to reduce weight. The whole instrument, complete with its supplies, such as charts, ink, &c., weighs only 11 lb. Provisions are made to protect the instrument while it is being carried. This set is particularly suitable for testing work and temporary uses. Both forms of the instrument use charts 8 in. in diameter and are made in five working ranges, which are, respectively, 20 to 130 volts, 20 to 150, 40 to 250, 100 to 650, all for 24-hr. records, and 100 to 650, for 2-hr. records. Special ranges are made to order.

The Pittsburgh Screw & Bolt Company, Pittsburgh, Pa., has prepared plans for the erection of a new office building at Twenty-fifth street and Liberty avenue, to replace a structure recently destroyed by fire.

Duntley Electric Grinders and Hoists.

The line of portable electric tools which includes the Duntley electric drills and reamers, made by the Chicago Pneumatic Tool Company, Chicago, Ill., has now been extended to include electric grinders and hoists. The design of these tools is such as will commend itself to those familiar with portable air tools, and it is claimed that they will be found economical as regards repairs required and power consumed.

The grinders are made in two types, one for portable use and the other for use in machine tools, these being known as tool post grinders, of which an example is given in Fig. 1. The portable grinders are made in two sizes, taking 5 and 8 in. wheels, respectively. The grinder is simply a light motor of generous capacity, with an emery wheel mounted on the extended armature shaft, the speed of which is so proportioned to the diameter of the wheel as to give the proper cutting speed recommended by emery wheel manufacturers. These tools are finding a wide field in all classes of metal work, the larger grinder being especially adapted for grinding rough castings or wherever heavy duty is required.

The tool post grinders are made in three sizes, taking wheels of 5, 8 and 10 in. in diameter, respectively. The electrical parts have been designed along the same lines as the Duntley electric drill. The grinding arbor is of steel and runs in bronze bearings, which are self-lubricating. These grinders are provided with tapered steel bushings driven by the shaft and running in phosphor-bronze bearings fastened to the housing of the grinder. Any of these parts can be easily replaced, and no part of the motor housing itself is used as a bearing. The grinders are provided with dustproof collars, keeping the emery out of the windings and bearings. The tools are light in weight, but they will develop a sufficient amount of power to do their work without excessive heating. They can be furnished especially adapted for internal grinding or mounted on a pedestal, if desired, for stationary work.

The Duntley portable electric hoists, of the form shown in Fig. 2, are made in sizes from 250 lb. up to 2000 lb. capacity. In designing these hoists it has been

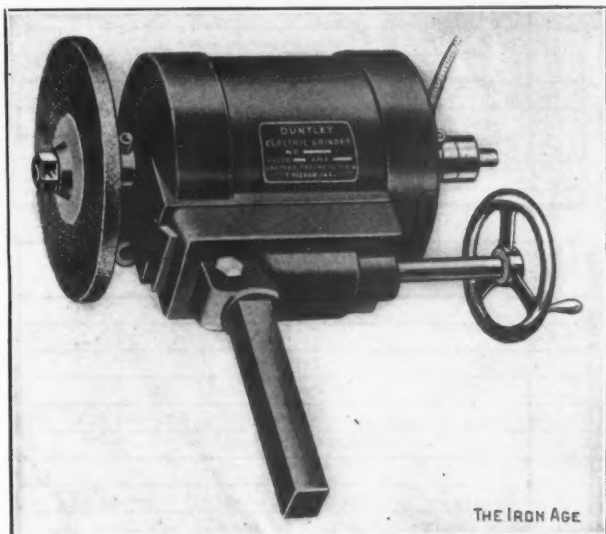


Fig. 1.—The Duntley Tool Post Grinder Made by the Chicago Pneumatic Tool Company.

the desire of the manufacturers to make a light portable hoist, and with this end in view a special motor has been designed for each size, instead of attempting to use the same motor on all sizes. The advantage is that no unnecessary weight is put on the hoist, and ample power is provided for doing the work of each in accordance with its rating. These hoists are of the worm gear type, with two hoisting drums, one located on each side of the gear. The worm is provided with roller thrust bearings and runs in oil. It is driven through a planetary system of gearing similar to that used in the electric drills. A very simple dynamic brake is used, by means of which the

hoist can be stopped instantly, either in raising or lowering the full load. The control mechanism is located at the outside end of the motor and is handled by two cords hanging in reach of the operator. The hooks are provided with a ball bearing swivel. The standard drums are arranged for a lift of 15 ft., and are sufficiently wide so that only one wrap of the cable is necessary on the

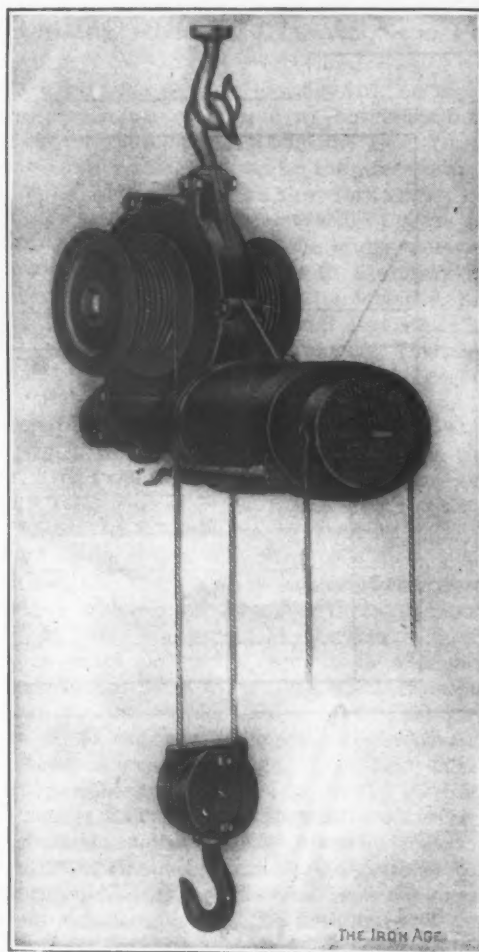


Fig. 2.—The Duntley Portable Electric Hoist.

drum. Where a greater lift is desired the drums are widened out, and can be furnished capable of lifting up to 25 ft.

The Cambria Forge Company.—This company, which for the past year has been engaged in the manufacture of drop forgings at Johnstown, Pa., has recently installed both steam and board hammers of the latest improved type, and has added other equipment to its plant, which fully increase its capacity 50 per cent. It is now in position to make drop forgings, ranging in weight from a fractional part of an ounce to individual pieces, weighing from 100 to 200 lb. The company has closed contracts with some of the largest automobile manufacturers in the country for their year's supply of drop forgings, and also has in hand a considerable amount of work along other lines. W. Milton Brown is president; R. P. Smith, vice-president; G. G. Campbell, secretary and treasurer, and Frank W. Trabold, general manager.

The Connellsville Southern Coke Company has been organized at Connellsville, Pa., with a capital of \$200,000, for the purpose of developing 283 acres opposite the town of Cheat Haven, Pa., and will build 300 coke ovens on the property. S. J. Harry is president; Frank E. Markell, vice-president; J. R. Davidson, secretary; W. H. Brown, treasurer.

The foreign trade of the United States for the 11 months ended May 31 for the first time passed the \$3,000,000,000 mark in such a period and exceeded by \$320,351,760 the total for the corresponding months of the prior fiscal year.

keeper in checking up new stock, to make certain that it corresponds in every way with that which was required or ordered.

The stock on entering the stockroom is placed in specially made boxes, which are lined inside with galvanized iron to prolong their wear. On the front of each box the number of the stock it contains is placed in large figures that can be easily read at a distance. On the right hand side of the box are the words "Minimum" and "Order"; after the first is placed the least quantity of the article in the box which must be kept in stock; that is, when the supply remaining in the box becomes less than that indicated a new supply must be ordered.

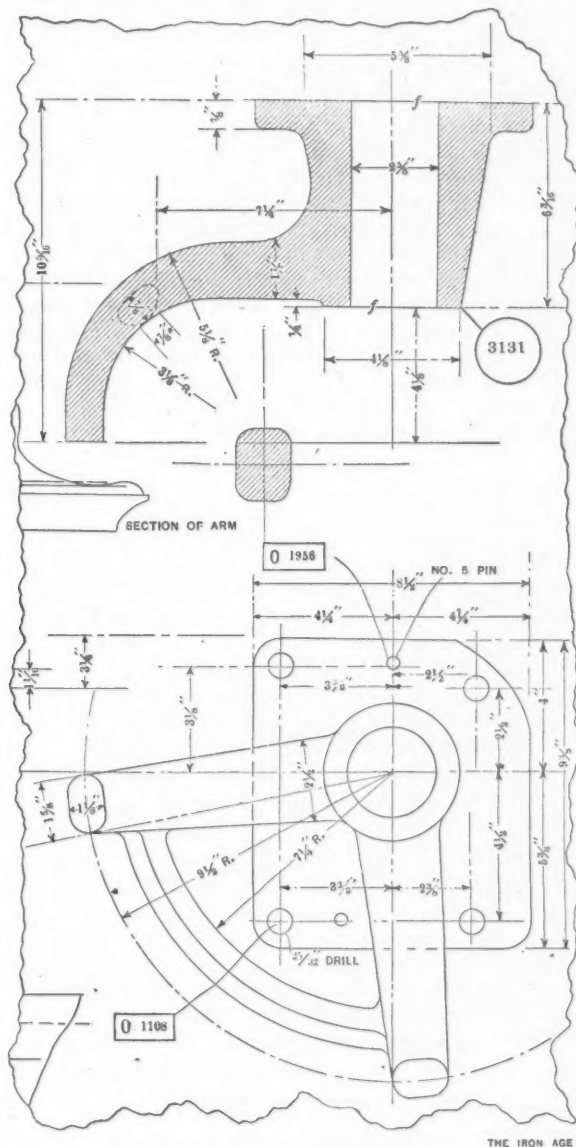


Fig. 3.—Portion of a Shop Drawing Showing Manner of Indicating Stock Numbers.

After the word "Order" is placed the maximum quantity that must be ordered at one time. These quantities are easily estimated by the aid of the card index in the following manner:

Each card indicates all of the places on which each article is used, therefore, by adding together the quantity used on each machine and by taking an average of the number of this size machine sold in five years, the quantity of stock used in one year on the machine can be fairly estimated. This amount is placed after the word "Order." The minimum is obtained by estimating the quantity of a certain article used after the order is sent out and before it is filled, thus keeping some of the stock always on hand. If the supply of $\frac{1}{2}$ -in. cap screws had been exhausted and 1500 of them ordered, and it was known that there would be a lot of machines using these screws to be assembled in a week or so, probably a spe-

cial small lot would have to be ordered, rather than run the risk of getting the machines on the erecting floor and not have enough of these screws to finish them. With this system it is impossible for anything of the kind to happen. The scheme is proving of inestimable value in this shop and would doubtless be of benefit to any company using any great amount of stock.

Steel Cutting with the Oxy-Acetylene Flame.

A demonstration of steel cutting with an oxy-acetylene blowpipe flame was made by the Davis-Bournonville Acetylene Development Company, New York City, Thursday morning, June 13, under the western approach of the Williamsburg Bridge in New York City. The experiments were made at the request of Eugene Kühne, contractor for the alterations to the bridge, necessary to connect its electric train tracks with a subway instead of an elevated railroad as originally intended, and involved the cutting of some structural members. The inventor of the torch, Eugene Bournonville, vice-president of the company, personally superintended the demonstration.

The first test was on a 6 x 4 x $\frac{5}{8}$ in. angle, the 6 in. side of which was cut through in $1\frac{1}{2}$ min. In the second test a plate $\frac{3}{8}$ in. thick was cut a distance of 3 ft. 2 in. in a total time of 9 min. 36 sec., or a net time of 8 min. 1 sec. In a total time of about 31 min., a 5-ft. built up I beam girder, consisting of a $\frac{3}{8}$ in. plate for the web and four 6 x 4 x $\frac{5}{8}$ in. angles at the edges, was practically completely cut through. In another test, a 6 x 4 x $\frac{5}{8}$ in. angle was completely severed in 2 min. 50 sec.; work which ordinarily requires 15 min. work of two men. Where the work is done with air tools, it is accomplished at an average rate of about 1 sq. in. in 10 min. In all of the tests there was used approximately 37 cu. ft. of oxygen and 18 cu. ft. of acetylene. The structural members were stated to fill the specifications for the bridge, in which the physical requirements for the plates, and shapes, and bars were an ultimate tensile strength of 60,000 lb., and a yield point of one-half the ultimate strength, and the chemical requirements, a maximum content of phosphorus not exceeding 0.04 per cent. for basic, and 0.06 per cent. for acid steel, and a maximum sulphur content of 0.05 per cent.

This oxy-acetylene cutting process requires three tanks, one containing compressed acetylene, and the other two compressed oxygen; one at high pressure, in this case about 900 lb. A higher pressure would have been desirable, but was not available. The low pressure oxygen and acetylene are first admitted to the blow pipe in proportions to produce proper combustion, and the flame is directed on the steel until the surface is well heated, then an additional jet of high pressure oxygen is passed through the torch and the cutting proceeds by the direct burning of the steel in the path of this jet. The cut was about $\frac{1}{8}$ in. wide, therefore the material lost in the cutting is probably less than by mechanical means and is inconsiderable.

The General Report of Mines and Quarries for 1906, recently issued in Great Britain under Government auspices, gives the output of minerals for last year. The production of iron ore was 15,500,406 gross tons, as against 14,590,703 tons in 1905; of manganese ore, 22,762 tons, against 14,474 tons; of tin ore, 7153 tons, against 7201 tons; of iron pyrites, 11,140 tons, against 12,186 tons. The total production of coal in Great Britain in 1906 was 251,067,628 tons, as against 236,128,936 tons in 1905.

The William Tod Company, Youngstown, Ohio, is building for the new plant of the Indiana Steel Company, Gary, Ind., four horizontal cross compound steam blowing engines of large capacity, which will form an important part of the blast furnace equipment. These engines are 44 and 84 x 72 in., with air cylinders 72 x 90 in. Each engine has a capacity of 50,000 cu. ft. of free air per minute.

The Aging of Mild Steel.

At the recent meeting of the Iron and Steel Institute, a paper was presented on the above subject by C. E. Stromeyer, who is a boiler inspector, responsible for the safety of over 8000 boilers in Manchester, England. His attention was drawn as early as 1889 to the fact that iron might suffer an aging process, and experiences accumulated to strengthen this belief. Among these may be mentioned that a boilermaker bought an old boiler which he had made years before, and of which he knew for certain that the furnaces were of Lowmoor iron. He hoped that the material, which was still in request, might come in usefully for repair jobs, but, very much to his

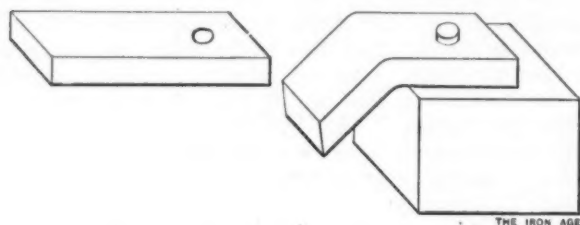


Fig. 1.—A Test Piece and the Manner of Bending It.

disappointment, the iron had lost its excellent qualities. It was not exactly brittle, but tended toward red shortness and cold shortness. This result is confirmed by a sample, known to be good originally, taken from an iron boiler 50 years old, which gave the following tests: Ultimate stress, 40,656 lb.; elongation in 8 in., 3.1 per cent.

This result might have been brought about by contact with the furnace gases. Accordingly, several sets of samples were exposed to hot gases, one parcel being suspended inside a boiler, two others in various parts of boiler flues, and two in the flues of a puddling furnace. One was tested at once by alternate bending. The others were tested in the same way about two months later. No marked deterioration was noticed in any one lot. Time, therefore, and not noxious gases, seemed to be the determining factor.

About this time, several old wooden armor clads were being dismantled, and the iron armor plates were being broken up like cast iron, or rather like stone slabs, under a falling weight. Judging by the severity of the Admiralty tests on iron armor plates, one could not help feeling that here, also, an aging effect had taken place.

Attention Turned to Steel.

The difficulty of demonstrating the aging effect, except by freezing the samples or by waiting several years, even although the material after passing the surveyor's test had deteriorated so much as to burst at a hydraulic test pressure of about 25 per cent. excess over the working pressure, decided the author to postpone researches until he had collected other samples which had given trouble in practice. These were compared with steel from recognized first-class steel makers, both British and foreign. Twenty-six steels in all were collected.

The desirability of commencing the tests made itself felt in 1904-1906, when certain specimens were received. One was a boiler shell plate which burst in 1904 under the Russian Government inspector's hydraulic test after being in use for six years. The adjoining boiler burst in the same way in 1905. Another was a plate from a boiler which burst in 1905 in Austria, while being tested at the maker's works. Another was from a boiler shell plate which cracked in 1903, while being bent in the boiler-maker's rolls, before planing the edges. The thickness was $\frac{7}{8}$ in. It was made of North British acid open hearth steel. Accidentally, some phosphoric pig had been charged in the furnaces. All inspector's tests and subsequent tests were good. The phosphorus was 0.165 per cent.

A Special Kind of Bending Test Found Best.

The difficulty, however, which had hindered inquiry in the past had not been removed, and no test had yet been devised which would reveal the brittleness in plates

which seemed to cause them to fail when riveted up, but did not show itself in the ordinary testing. Over and over again tensile and cold and temper bending tests have given satisfactory results with plates which have failed as structures. It was therefore desirable, if possible, to try and find a discriminating test, and it was finally decided to carry out as many tests as possible, and to establish a co-relation, if that existed.

Tensile tests were not found to be so good as bending tests for detecting brittleness, nor are bending tests with sheared edges satisfactory, for so very much depends on the condition of the shear blades. The test that was found to be of the most discriminating nature consisted of taking a test piece with a hole punched in one of its ends. This was fitted over a projecting stud of the anvil block, whose one face had a slant of 45 degrees, Fig. 1.

By this means, the bending always takes place at one point. The pieces were annealed to remove the stresses set up by shearing, the sides planed flat, and were then nicked on the edge and bent. The chisel used to nick the pieces is shown in Fig. II. It projected out of the flat, and could only penetrate the metal to a certain depth.

The plates, comprising the 26 samples already mentioned, were rolled down to 7-16 in. thickness. After rolling, most of them measured 2 ft. by 3 ft., and were laid on the rolling mill floor to cool. Black spots, which soon showed themselves, were noted, as it seemed possible that hardening effects might be produced at those points. The plates were then sheared to give the test pieces. These were tested in many different ways, in addition to the nicked bending test already described.

The Various Tests Applied.

The temper test, which consisted of heating the pieces, quenching in water at the atmospheric temperature and then bending, yielded no information about quality. Other pieces from the same plates were bent, first up, then down, through angles of 45 degrees. The highest number was 16 bends, given by a very mild German basic open hearth steel. These alternate bending tests were repeated after waiting 12 weeks on duplicate samples, but were not found to have grown decisively more or less brittle. Other pieces were tested the same way, after annealing for 24 hr. This annealing test was undertaken with a view to ascertaining whether long continued heating would tend to burn any of the steels. In only four cases was the number of bends decreased. The others either gave the same tests or were improved.

Finally, the bending test with the sides planed and

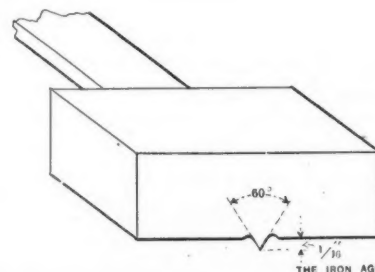


Fig. 2.—Form of Chisel Used in Nicking Test Pieces.

the edge nicked was used. Tests after waiting 12 weeks compared with original tests are fairly encouraging, in so far that all those samples which were rolled from plates that had misbehaved themselves are among those in which the aging process is one of deterioration. The only exception is a plate which broke while being sheared, and in this case the phosphorus is high. Tests of the sheared pieces, which were boiled in water at 212 degrees F., and waiting one day, gave results closely agreeing to those obtained by waiting 12 weeks.

The author's conclusions are that certain steels do possess aging properties; that some steels tend to improve with time and others to deteriorate; that as yet the process which gives results which are most in harmony with practical experience is to plane the edges of two samples, to nick them with a specially prepared

chisel, and then to bend one sample at once, and the other after waiting some weeks, or boiling. This test, however, should not be relied upon to detect phosphoric steels.

G. B. W.

Demonstration of Weldless Chain Making.

A process for manufacturing weldless iron and steel chains in all sizes was described in *The Iron Age*, May 9, 1907. It was invented by an Austrian engineer, Stefan von Ecseghy, and is used by the Handelsgesellschaft Kleinberg & Co., Vienna, Austria. On Wednesday forenoon, June 12, the first public demonstration in this country of the making of this chain was given before a party of invited representatives of the technical and trade press at the shop of the Funk Engineering Company, in Hoboken, N. J. The press illustrated in the article previously mentioned was the one used in the demonstration, and was imported for the purpose. The exhibition was made by the International Import & Export Company, who are agents for the patent rights in this country, and the inventor personally operated the machine.

The procedure was the same as that recounted in the description which has already appeared in these pages, so that an explanation of the apparatus is unessential at this time. There have, however, been improvements added since the original experiments in Austria. The form of the dies has been modified to strengthen the links in the most vulnerable points, and the driving of the friction screw press has been supplemented with a safety slipping connection which decreases the shock on the uprights and screw of the press at the moment of delivering the blow.

A chain of several links was made, each link being completed in about 25 seconds. This time, however, is probably more than would actually be required in manufacturing when the work is handled by an expert smith, and the speed of manufacture will also be increased by the use of the more completely automatic machine which has since been designed and in which all of the work will be done by the one machine. In the present case the dressing of the links was effected in a second machine, a small power press.

The visitors were also shown a piece of the chain that had been tested to the breaking point, and it was interesting to observe that the link broke in the solid part and not where it had been subjected to forging. In other words, the strength of the chain was plainly shown to be that of the original stock of the blank from which the link was made. Another interesting fact disclosed was that the remainder of the links of the tested portion of the chain were slightly opened up where the link is folded upon itself, and it was mentioned that this is an advantage, since it affords an indication when the chain is dangerously strained.

Billings & Spencer Improvements.—The Billings & Spencer Company, Hartford, Conn., manufacturer of drop forgings, drop forging machinery and small tools, is to replace one of its buildings by a structure, 40 x 80 ft., three stories and basement. The building now located on the site is not of the modern fireproof type, and in other ways the new structure will have important improvements on the old. The company has recently occupied its new machine shop, which is one of the finest in New England. The building is 55 x 250 ft., with monitor roof over a crane bay, and broad galleries for lighter machine work. A 20-ton Niles electric traveling crane serves the central bay, and in addition there are a number of jib cranes for use in connection with heavy machine tools. The shop is an exceedingly light one, and besides is fireproof, being of brick and steel construction. The galleries are served by two spacious elevators. The company is to instal three new boilers, and has placed a contract with the Ingersoll-Rand Company for a compressor plant for lifting the water from an artesian well on the premises. The company is very busy in all of its departments. Work has begun on the plant of the Canadian branch of the business at Welland, Ont.

The Hanna Portable Power Riddle.

A portable foundry sand screen shaker manufactured by the Hanna Engineering Works, 820 Elston avenue, Chicago, which has been improved by the application of an electric motor drive, is shown in the accompanying illustration. Owing to the small amount of power required to run the machine the added weight of the motor has not affected its portability, for it still may be conveniently moved from one part of the foundry to another. Either direct or alternating current motors of $\frac{1}{4}$ hp. capacity are provided, and current supply may be taken from ordinary lamp sockets.

By a spur gear drive from the motor shaft a crank mechanism is operated, establishing a reciprocating motion, for oscillating the riddle at a speed of approximately 1000 strokes per minute. The sieve and driving apparatus are mounted on a tripod pedestal, the feet of which are provided with heavy balls to increase its stability. Two rocker arms attached to sides of the screen holder and resting on the legs of the tripod carry the weight of the load, so that the bearings of the actuating mechanism are relieved of this burden.

The holder is large enough to accommodate the ordinary 18-in. foundry riddle, and the machine has sufficient



A Portable Electric Driven Foundry Riddle Made by the Hanna Engineering Works, Chicago.

power to handle any load of sand which may be placed in the riddle. The speed is fast enough to screen the sand through a 2-in. mesh riddle, as rapidly as one man can shovel it in. All gears and bearings are housed and protected from dirt. The machine weighs 125 lb.

The Whitlock Coil Pipe Company.

The Whitlock Coil Pipe Company, Hartford, Conn., has completed its scheme of new buildings and is now occupying the extensions of its works. During the past year the capacity of the plant has been more than doubled. It now occupies a site of 25 acres, with a frontage of 2000 ft. on the New York, New Haven & Hartford Railroad. The capital stock of the company, formerly \$84,000, is now \$400,000. The plant comprises 10 buildings, of brick, concrete and steel construction.

The recently completed buildings include a coil shop for the manufacture of miscellaneous coils of every description, which is 120 x 265 ft., of brick, steel and iron, with concrete tile roof, and a building of the same construction, 120 x 140 ft., which is used for the manufacture of high pressure power plant piping. The company has a patented process for bending pipe of all sizes up to 30 in. in diameter for high pressure work, and also for making the Whitlock joint for high pressure duty, into which general line of business the company has now gone on an extensive scale. Besides these two shops the company has built during the past year a three-story addition to its No. 3 shop, 50 x 200 ft., mill construction, and a gas producer plant for the manufacture of fuel gas used in the various departments.

The Lukens Iron & Steel Company, Coatesville, Pa., in the month of May broke all its previous monthly records of production of plates.

The Lowe Process of Utilizing Oil.

Prof. T. S. C. Lowe, inventor of the process of manufacturing water gas, and who is now a resident of Los Angeles, Cal., has perfected a process by which in the first distillation of the oils from petroleum he secures a high grade of distillates which will bring in the market more than the entire cost of the petroleum. From the next distillation a gas of the highest efficiency is derived for the production of heat and power. In making this gas a residuum of tar and lampblack is left which is conducted into specially built coke ovens, where, undergoing another process, the volatile part is converted into more gas of high quality. The solid portion of the residuum, a pure carbon, is crystallized into coke which is stated to be harder and capable of standing a heavier load than ordinary coke, and would consequently carry stock much better in the furnace. This coke is free from sulphur and other impurities. The lampblack, when

A Newton 40-In. Gear Cutting Machine.

An extremely heavy type of vertical automatic spur gear cutting machine for cutting railway motor gears is illustrated in Figs. 1 and 2. Four of these were recently built by the Newton Machine Tool Works, Philadelphia, Pa., for the Lynn, Mass., works of the General Electric Company. These machines are capable of cutting gears up to 40 in. in diameter and were designed with the view of driving simultaneously three specially shaped cutters for $3\frac{1}{2}$ -in. circular pitch teeth, so that one tooth is finished at each indexing.

The cutter driving spindle is 5 in. in diameter, and is mounted on an auxiliary slide having cross adjustment for convenience in setting cutters. It is driven from a 10-hp. variable speed motor through spur and spiral gears and a steep lead worm wheel and hardened steel worm, all as plainly shown in Fig. 1. The different speeds of the motor in connection with the back gearing

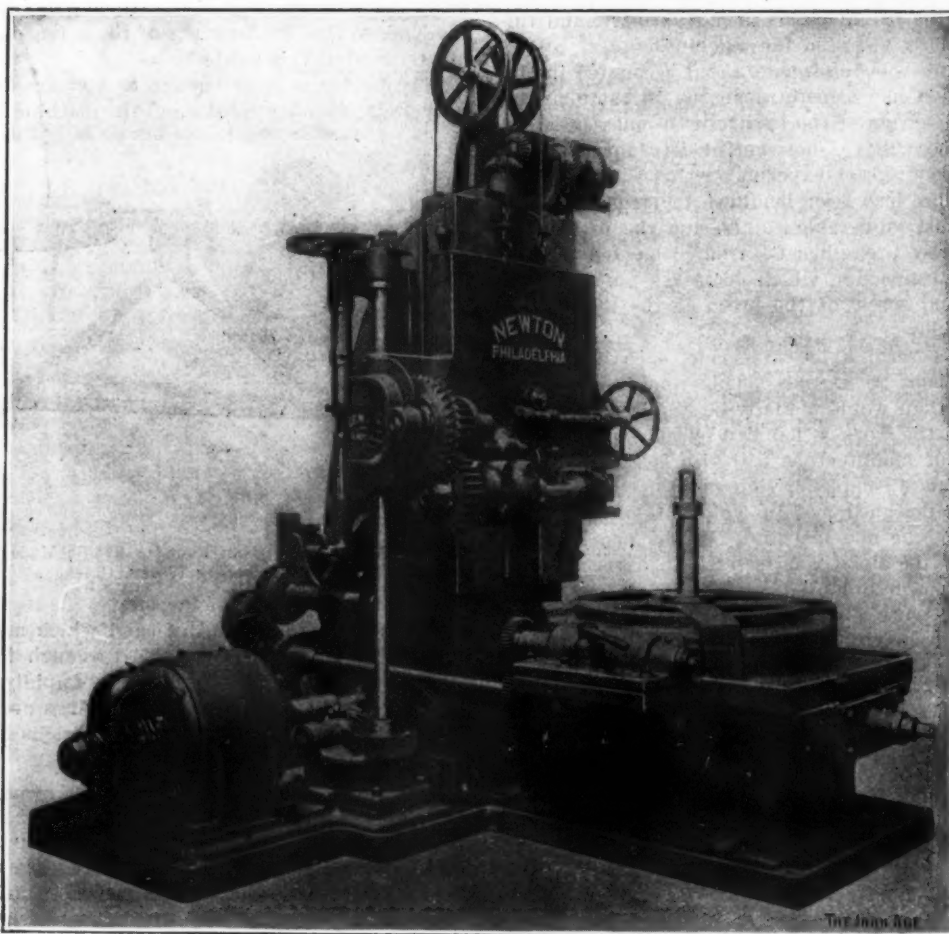


Fig. 1.—A Heavy 40-In. Automatic Spur Gear Cutting Machine Built by the Newton Machine Tool Works, Philadelphia.

mixed with one of the refined distillates, another by-product, is stated to form a perfect lubricant.

The claim is made that with this process, taken in combination with the great oil resources of southern California and the large deposits of iron ore found within transportable distances, the way is open for the location there of iron and steel works. It is also claimed that gas engines actuated by the by-product gas, which virtually costs nothing, will enable southern California to compete with other sections having electricity generated by water power.

The United States Government had in the treasury on June 11 a cash balance of \$260,011,924. against about \$175,000,000 one year previous. It is estimated that the surplus for the fiscal year ending June 30, 1907, will approximate \$78,000,000. Last year's surplus was about \$24,000,000. In the last fiscal year the receipts from customs were \$283,108,000 up to June 11. For the corresponding period of the current year they were in excess of \$314,000,000.

give a total speed range of 8 to 1. The cutter arbor is 3 in. in diameter and is driven by a broad face key. The outboard bearing is fitted with a split bronze bushing which has parallel internal and taper outside bearing surfaces with adjusting nuts to compensate for wear, and is arranged to permit close adjustment to the cutters, regardless of the length of the arbor.

The saddle is counterweighted, and has nine changes of positive geared feed for each of the cutter speeds, independent quick return and an adjustment of 18 in. The changes of feed are obtained through the gear box on the side of the column which is shown in Fig. 2. The feeding movement is driven through the right hand vertical shaft and the constant quick return through the left hand vertical shaft. The first is driven through bevel gears and drives a worm on the horizontal shaft at the top of the column; the second is driven and drives through spiral gears. The gear box for the feeds and the spiral gear at the lower end of the quick return shaft are driven from a horizontal shaft extending through the base in prolongation of the motor shaft. The horizontal shaft

at the top of the column is connected with either source of power by a clutch and drives the saddle screw through bevel gears. The clutch is operated in alternate directions by adjustable dogs on the back of the saddle set for the desired limits of the saddle movement.

The driving worm wheel on the work spindle has an auxiliary ring by means of which a perfect fit can always be maintained with the worm, and has an entirely enclosed bearing 38 in. in diameter on the carriage and cover. The carriage is moved from or toward the column, according to the diameter of the work, by a hand crank and screw at the front end of the bed. The indexing worm wheel is mounted on an adjustable bracket arranged to be disengaged by means of an eccentric lever shown in Fig. 1, permitting the rapid rotation of work desirable when cutting segments or locating teeth in split gears, for which these machines were particularly intended. It is driven through change gears giving all divisions from 12 to 50 teeth inclusive and all composite numbers of teeth from 50 to 100 by the friction index plate. The latter is in turn driven from the vertical shaft driving the cutter spindle, through intermediate gearing and the index clutch shown in Fig. 1 on the side of the column. This is operated by an adjustable trip on the back of the saddle, or by hand through the lever shown, and is only engaged during the actual time of indexing. This arrangement makes the feed, the quick return motion and the indexing movement independent in their operation, yet prevents them from interfering with each other by a safety locking device operated from the indexing plate.

The Improved Grönkvist Drill Chuck.

About two years ago when the Grönkvist drill chuck was first introduced it was a departure in its principle of action from anything which had been brought out before, being entirely automatic and requiring no keys, wrenches or other appliances for operating it. In an illustrated description which appeared in *The Iron Age* September 28, 1905, it was explained that changing of drills is accomplished without stopping the machine, it being only necessary to hold the exterior body of the chuck with the fingers to release the drill, after which another may be inserted, and a spring restores the gripping action. Subsequently the pressure due to the working of the drill increases the clamping power, and the greater the pressure the greater the hold upon the drill. Lately the manufacturer of the chuck, the Grönkvist Drill Chuck Company, Jersey City, N. J., has improved the construction because it was found that high speed drills of certain diameters would slip, since the curves of the cam faces which produce the pressure were not suitable for all diameters. The curves of the cams were then segments of eccentric circles, and the angle between the faces of the rollers and the cam was not constant. In the improved form the cam curve is a logarithmic spiral, corresponding to the angle of friction, and any diameter within the capacity of the chuck is held with equal firmness. Otherwise the chuck has the same construction as before, and its external appearance remains unchanged.

For the benefit of those who may not be familiar with the Grönkvist chuck it may be said that it consists of two principal parts, a chuck body with an opening for the drill and three grooves in which are placed the three cylindrical rollers, and a surrounding body of cylindrical form which contains the cam surfaces. The clutch holds by the friction of the three rollers on the drill, the gripping force automatically adjusting itself to the resistance. The contact between the rollers and the cam is a rolling one, so that no sliding occurs and consequently there is practically no wear. The gripping surfaces being hard, round and smooth, do not in any way injure the shank of the drill, and it is always centered accurately. The cams are ground in special machines and are tooled

twice inside at the curves. Between each tooling the ring is annealed to take out stresses, and after the second machining the cam is hardened and ground inside accurately. The rollers are mild steel, case hardened, and the body of the chuck is of Swedish steel.

The chuck body has a taper hole for the spindle, which holds it in the drill press. A spring in the interior of the chuck tends to hold the body and the sleeve in relation to cause the rollers to move toward one another gripping the drill. This is the normal position when the chuck is not touched with the hand. The rotary motion of the drill spindle and the tension of the spring are in the same direction, while the resistance against cutting is in the opposite direction. Therefore as the resistance of the work increases, the grip on the drill is proportionately increased. By lightly holding the sleeve with the hand its rotation with the chuck body is prevented and the rollers retract, releasing the grip on the drill.

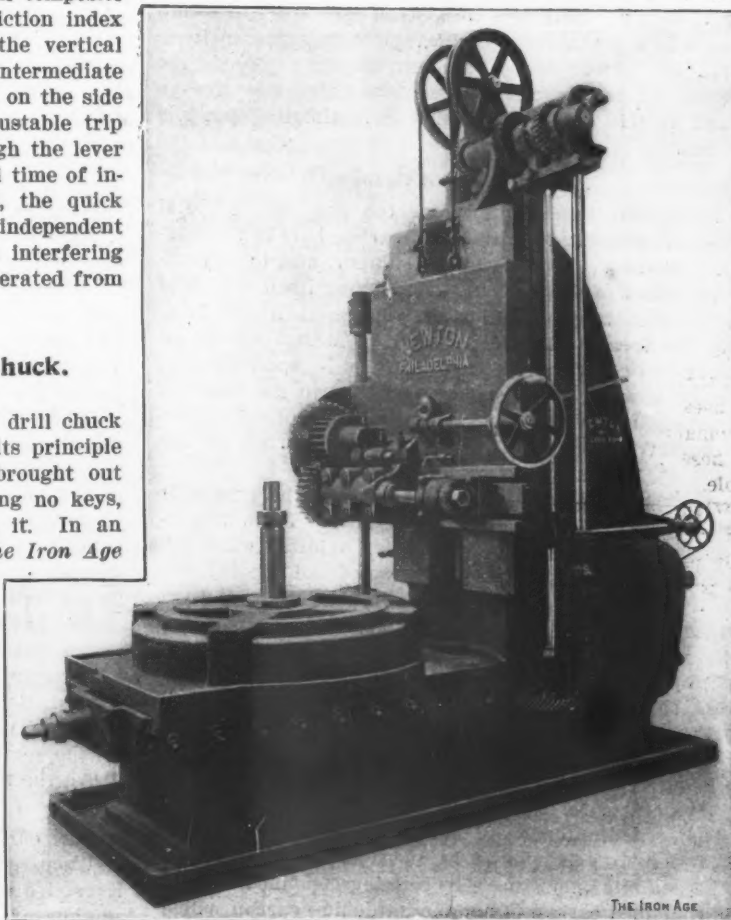


Fig. 2.—A View of the Opposite Side of the Newton 40-In. Automatic Spur Gear Cutter.

The chuck is at present made in five sizes, taking drills of from 1-32 to $\frac{1}{4}$ in. in diameter, with a range of several sizes for each chuck.

Lake Superior Mining Institute.—The secretary, A. J. Yungbluth, Ishpeming, Mich., announces that the thirteenth meeting of the Lake Superior Mining Institute will be held on the Minnesota ranges July 24 to 27, 1907. Committees representing the various mining interests on the Mesaba and Vermilion ranges are arranging a programme which promises to be very interesting, including trips by special train to a number of important iron mining centers. The last meeting on these ranges was held in 1902. Since that time many new mines have been opened. The question of mine sanitation will receive further attention at this meeting, and additional contributions are expected on the subject of sampling ore at mines and at lower lake docks. A feature of the meeting will be a paper by J. H. Harding, Eveleth, Minn., containing biographical sketches of men who have been prominent in iron and copper mining in the Lake Superior region.

Manganese in Cast Iron.*

BY HERBERT E. FIELD, PITTSBURGH, PA.

The literature on the effect of manganese in cast iron contains many contradictory statements. As is usual in such cases, these statements were correct for the work with which the writers were familiar. The errors come from drawing general conclusions from special experiments. Four years ago, in a paper before your association, I called attention to the confusing statements in regard to carbon in iron. I then cited two opposite statements made by different authorities and showed that both were correct in the limited area of their experiments. To-day I wish to reconcile the diverse opinions in regard to manganese in cast iron.

One authority states that manganese hardens iron, while another as confidently asserts that it has a softening influence. Both are correct. There are two conditions which determine the effects of manganese on iron: First, the percentage of sulphur present; second, the amount of manganese. These two conditions are so bound up with one another that it is almost impossible to consider them separately.

Manganese and Carbon.

Manganese tends to increase the per cent. of total carbon, to increase the amount of carbon held in the combined condition, to decrease the sulphur, and to neutralize the effect of the sulphur. Manganese itself will hold more carbon in combination or solution than will iron, hence an increase in the per cent. of manganese in an iron tends to increase the carbon. This is especially true in cases where the manganese is added to the ladle as ferromanganese or spiegel, since the per cent. of carbon in these two increases the per cent. of carbon in the whole.

When the manganese is charged into the cupola it acts in two ways to increase the carbon. First, it partially prevents the carbon from being oxidized when the iron passes through the melting zone of the cupola; second, it increases the power of the iron to absorb carbon and hence the iron in passing through the incandescent coke, will take up more carbon. The higher the manganese present, the greater will be the amount of carbon so absorbed. In the paper above referred to, I pointed out that, other things being equal, the higher the total carbon, the softer will be the cast iron. An increase in the manganese, then, tends to soften the iron by increasing the total carbon.

The softening tendency, due to the manganese raising the total carbon, is counter balanced to a certain extent by the action of manganese in forming combined carbon. This combined carbon is not the hardening carbon which gives the intense hardness to quenched steel, but is a definite compound of manganese and carbon. The carbon so united is called carbide carbon. It is this tendency to form a hardening carbide that has led many to state that manganese hardens cast iron. The hard, gritty nature of some high manganese irons is due to this carbide. We are all familiar with the high manganese pig irons which have a dark, open No. 1 fracture, which even to the expert eye would be graded as a number 1. When we try to drill this iron we find that it is almost impracticable to do so with any ordinary drill, and with specially hardened and shaped drills, it grinds rather than cuts. This peculiar nature of high manganese iron which makes it so hard to drill is due to an innumerable number of small particles of this very hard carbide.

The Lowering of Sulphur.

It has long been known that manganese tends to eliminate sulphur from iron in passing through the cupola. This elimination is due to the fact that manganese forms a compound of sulphur which separates out of iron at a high temperature. This temperature is above the melting point of iron and hence the compound passes off into the slag. Sulphur hardens iron, and as manganese tends

to eliminate sulphur, it has a decided softening influence upon the iron. This influence, of course, is an indirect one, as it is due to the absence of the sulphur rather than to the presence of the manganese.

There has been considerable discussion in the last few years over the value of manganese ore as an eliminator of sulphur in cupola work. Some German experimenters have stated that a large proportion of sulphur may be removed by the correct use of manganese ore and limestone. Some of our American foundrymen working on the same lines have obtained results which are not nearly so convincing. Many reasons have been given for this discrepancy in results and the prevailing opinion seems to be that the difference is one of temperature. The use of manganese ore in cupola practice is open to several objections and as high manganese iron can be readily obtained which will introduce the manganese in a very satisfactory manner, the former method is hardly to be recommended for ordinary cupola practice.

Experiments with Manganese Additions.

A few notes on previous work on this subject might be of interest. A. E. Outerbridge, in a lecture before the Franklin Institute in 1888, called attention to the remarkable effect of the addition of a small amount of manganese to a ladle of cast iron. Professor Turner, the English metallurgist, states that manganese eliminates the sulphur as manganese sulphide which floats on the surface of the molten iron, thus forming a part of the slag which collects at the top of the metal.

Walrand melted cast iron high in sulphur in one crucible and manganese in another crucible, and when the two were poured together, a strong odor of burning sulphur was given off. The sulphur was reduced from 0.5 to 0.06 per cent.

Caron's experiments along the same line gave the same result and he is said to be the first to call attention to this peculiar feature of manganese in its action on sulphur.

J. W. Stead melted 100 parts of ferromanganese with sulphide of iron in a crucible. The metal produced showed 0.02 per cent. sulphur, while the slag analyzed 28 per cent. sulphur and 56 per cent. manganese.

We have said that the effect of manganese in eliminating sulphur was due to the formation of a sulphide of manganese which floated to the top of the iron and formed a part of the slag. Professor Le Chatelier and Mr. Ziegler first suggested that this effect was produced by the segregation of sulphide of iron at a temperature above the melting point of iron.

Minute of Sulphur Effects.

The effects of sulphur on iron are too well known to be discussed here. It makes iron short, brittle and hard. Excessive amounts make it very weak. These effects of sulphur are due to the fact that when cast iron solidifies, the sulphur is still in a gaseous state and each particle of iron is surrounded by a wall of gaseous sulphur. When the iron cools, the gas solidifies or unites with the surrounding crystals of iron as iron sulphide. In this latter condition it occupies much less volume than when it was in the gaseous state. This leaves the crystals of iron surrounded by small spaces which, under the microscope, have the appearance of very minute cracks. These cracks give to the iron the brittle, short property characteristic of high sulphur iron. The point to be borne in mind in this connection is that the sulphur is in the form of a gas when the iron sets.

Let us go back for a moment and consider the effect when manganese was added to irons high in sulphur. The manganese united with the sulphur and the sulphide of manganese separated out at a temperature above the melting point of iron, or, in other words, while the iron was in a liquid condition, so that when the iron solidifies there will be no sulphur left as a gas to form microscopic cracks, it having already united with the manganese to form sulphide of manganese. This will rise to the top of the iron as a slag, provided sufficient time is given. If, however, there is not sufficient time the sulphide of manganese is held in the iron in suspension in the form of infinitely small, solid particles. These are invisible to the naked eye and do no more harm than so many

* A paper read at the Philadelphia convention of the American Foundrymen's Association, May 21, 1907.

particles of any solid substance. There are times, however, when the casting remains liquid for a long time, that this sulphide of manganese will segregate together to ward the top of the casting and form bad spots, which are difficult to obviate and which are frequently assigned to very different causes.

Occurrence of Manganese Sulphide.

The credit of bringing this subject again to the attention of metallurgists is due to J. O. Arnold. While working on a sample of steel rail high in sulphur, furnished by Mr. Brinell and recorded as giving good results, he discovered that instead of the fine, microscopic cracks, which would be expected from so high sulphur percentage, the steel showed threads of what appeared to be slag running lengthwise with the rail. This was manganese sulphide, and proved to be no more harmful to the rail than the fine threads of slag contained in wrought iron are to that product. If we apply this to cast iron we find the same conditions exist. The effect of manganese on cast iron, which has not previously been explained, under the light of this knowledge becomes clear. The statement that manganese softens iron is readily believed when we appreciate that it forms a compound with the sulphur, thus removing its hardening effect. The strengthening effect of manganese is easily explained when we consider that it removes the small microscopic cracks caused by the sulphur.

It is very readily proved that manganese does unite with sulphur to form the sulphide of manganese in cast iron. It is not possible to separate it from iron by analysis, but its tendency to rise to the top of the casting gives us the opportunity to prove our question.

Chas. H. Risdale gives the analysis of an ingot mold which showed in the top part 1.35 per cent. manganese and 0.75 per cent. sulphur, while the bottom part of the same mold showed 0.11 per cent. sulphur and but 0.54 per cent. manganese. An analysis recently sent me of a cylinder 24 in. long and 9 in. in diameter gave the following analysis for sulphur and manganese at the top and bottom of the cylinder:

	Sulphur. Per cent.	Manganese. Per cent.
2 in. from bottom.....	0.148	0.54
½ in. from top.....	0.204	0.66

It will be noted that this cylinder was but 24 in. long, that the time taken for it to solidify would be comparatively short, and hence the time allowed for the sulphide of manganese to rise would be of a very short duration.

The top of a water pipe cast on end gave sulphur 3.06 per cent; manganese, 1.136 per cent., while the bottom end showed but 0.076 per cent. sulphur and 0.584 per cent. manganese. The top of another pipe gave 0.43 per cent. sulphur and 1.79 per cent. manganese, but unfortunately no piece from the lower part was saved. These show a simultaneous segregation of manganese and sulphur from molten iron. Inasmuch as manganese would not be expected to segregate by itself, it would appear that this compound must separate out and rise to the top of molten cast iron.

The writer considers that this explanation of the effects of manganese on cast iron reconciles the conflicting statements in regard to the same. It explains the segregation of sulphur in pig iron, which has long been known but never explained. It shows why sulphur makes iron weak, and that when united with manganese it has practically no weakening effect on iron. It explains the remarkable effect of small amounts of manganese when added to a ladle of cast iron. It shows why high manganese may cause dirty iron.

G. A. Tomlinson of Duluth, has closed a contract with the Great Lakes Engineering Works, Detroit, for two large lake steamers for 1908 delivery. The boats will have a carrying capacity of about 11,000 tons each, and will cost about \$450,000 each. They will be 564 ft. over all, and will have triple expansion engines with 24, 37 and 65 in. cylinders and 42 in. stroke. They will be equipped with Scotch boilers. The new boats will be operated by the Mutual Steamship Company, which was incorporated in St. Paul a few days ago by G. A. Tomlinson, D. W. Stocking and Fred Houghton.

The Trade School Convention.

INDIANAPOLIS, IND., June 15, 1907.—The Trade School Convention, held in this city this week in connection with the commencement exercises of the Winona Technical Institute, did not attract a large attendance from other States, but those that came entered actively into the work tentatively laid out, for it was the first convention of the kind and experimental to that extent. The meetings, which were open, attracted a large number of employers of the city and State, and the need for, and in addition the needs of, trade schools were thoroughly discussed. The representatives of employers and employees themselves had at hand for inspection and study a well equipped young but successful trade school where they could see their plans in practice. The report of this one institute showed that since it opened, four years ago, 631 young men and women had received training there, and practically all had gone out in the world to work at the trades they had learned there. That its usefulness grows was indicated by the enrollment last year, which covered 311 students. In view of the largely experimental nature of the project at its start, the dubious prospects, the handicaps and the obstacles supposed to exist, the record is looked on as highly satisfactory by those who established and have steadily supported the institution. The many large buildings of the institute were thronged on commencement day, and the visitors were well entertained in their inspections of the various schools where trades are taught.

The convention addresses indicated that industrial training is centering around trade schools. It was said frequently that there is a scarcity of skilled mechanics, and these schools must be looked to for increasing the supply. The system would have to be broadened, many of the speakers said, to include the common schools, where manual training should be taught from the start. A hardship is imposed on the boy that wants to learn a trade. Labor organizations that would oppose industrial education, it was said, would shut the door of hope in the faces of their members' own children. The expansion of the industries is hindered by the lack of competent men to increase the output. It was vigorously denied by the speakers at the convention that the trade schools were being encouraged and supported by employers' associations for the purpose of educating strike breakers. Their purpose, it was shown, is mainly to take the place of the old apprenticeship system, which fails altogether to supply the number of skilled workmen needed, the pressure in the workshops being so great under modern developments that there is little or no time to educate apprentices. Opposition to these schools was based on the false idea that they would overstock the market with workmen and reduce wages. On account of the gradual abandonment of the old apprenticeship system America is getting her new workmen largely from Europe, and these have to learn the language, manners and methods before they become efficient. There are hundreds of applications unfilled for the graduates of each of the trade schools of the country.

The convention before adjournment appointed Dr. S. C. Dickey, president of the Winona Technical Institute, chairman of a committee of five, the other members of which he is to select, to seek subscriptions for a fund for the furthering of trade school education in the United States. The committee has power to call another trade school convention to which to make report of its work. One of the proposals at the convention was to form a board similar to the National Board of Education, to which John D. Rockefeller contributed \$32,000,000.

The New England Foundrymen's Association.

The monthly meeting of this society, held at the Exchange Club, Boston, June 12, was given over to an entertainment, the more serious purposes of the organization being abandoned for the evening. Announcement was made that the July meeting of the association would take the form of an outing, details of which will be announced later.

The Economy Friction Clutch.

As with all friction clutches of the expanding ring type, the Economy friction clutch, invented by R. C. Nugent, and made by the Nugent Tool Company, Cincinnati, Ohio, may be combined with a pulley in a device to replace the usual tight and loose pulleys. It is thus shown in the accompanying illustration, but it can also be used in a shaft coupling, or in one form or another applied where one rotating part is to run continuously and the other intermittently. It is self-locking, in either engaged or disengaged position, and is adjustable in its resistance to slipping.

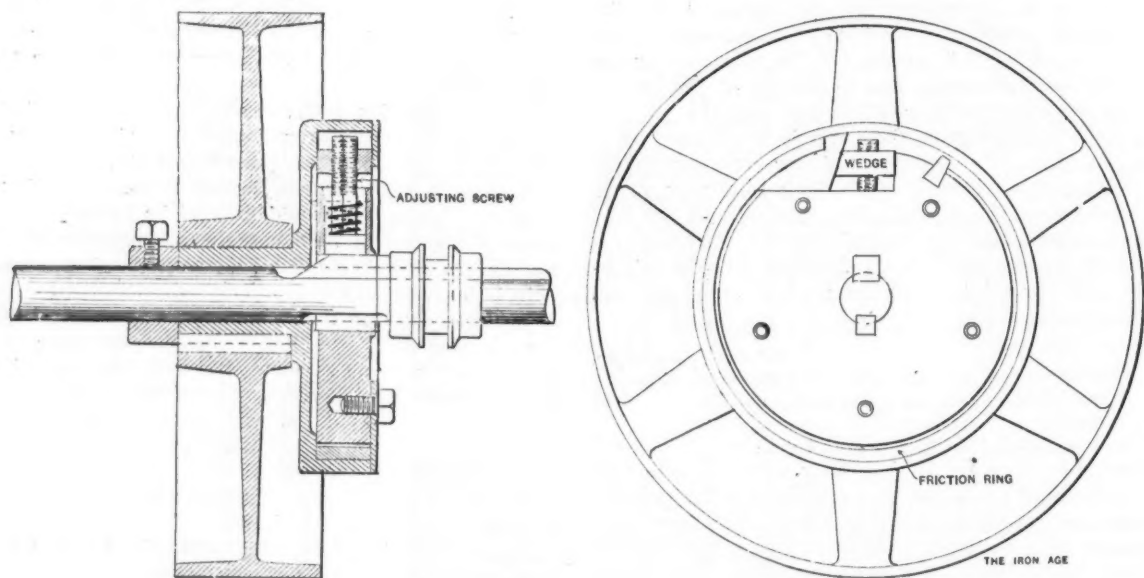
The drawings include a sectional view through the center of the shaft and an end view from the side of the operating members. Of the two parts frictionally engaged either may be the continuously running one, but in the following description it will be assumed that the shaft is stationary, except when the clutch is engaged. To the shaft is keyed a disk having a radial bore at one extremity of which the disk is cut out near its periphery, and at its other extremity is slotted near the shaft to admit the key that causes the clutch to engage. In the bore of this disk is located a pin, hereafter called the actuating plunger, one end of which is adapted to en-

the driving member, causes the disk and shaft to rotate with it. The actuating plunger is threaded in the wedge at its upper end, so that it serves as an adjusting screw for regulating the amount that the friction ring is expanded, thereby varying the amount of power that the clutch will transmit.

To release the clutch the opposite procedure is followed, the sleeve being shifted so as to withdraw the key from under the actuating plunger, when the tension spring surrounding the plunger automatically retracts the wedge block at the upper end of the plunger, allowing the expansible ring to contract. Then the shell pulley and the disk are disengaged and either may be revolved with respect to the other. The sliding sleeve on the shaft can be shifted by the usual forked lever, and if desired the same sleeve may be arranged to operate two clutches, one on each side of it, so that with open and cross belts a shaft may be driven in direct or reverse directions or allowed to stand stationary.

Ohio Mechanics' Institute Year Book.

The annual catalogue of the Ohio Mechanics' Institute, Cincinnati, Ohio, gives a prospectus for 1907-1908, and is incidentally interesting in showing the new



Cross Section and End View of the Economy Friction Clutch, Made by the Nugent Tool Company, Cincinnati, Ohio.

gage with the tapered key before mentioned, while the other end carries a wedge, which plays in the cut away part of the disk. A spiral spring tends to hold this pin in the retracted position—that is, toward the shaft.

The disk is surrounded by a hollow drum, which may be formed in one face of the driving pulley or in a member which forms one end of the shaft coupling, as the case may be. Between the drum and the disk is an expansible ring, one end of which abuts against a key in the disk, while the other is attached to a triangular block that slides in the opening in the disk. One face of this block is cut at an angle to correspond with the bevel of the wedge at the upper end of the actuating plunger. The shell pulley is held against longitudinal displacement by a collar fixed to the shaft by a set screw. On the opposite side of the pulley the shaft carries a sliding sleeve, to which is fixed a key with an inclined end adapted to slide in a keyway in the shaft. When this sliding sleeve is shifted the key is introduced under the inner end of the actuating plunger and its tapered end lifts the latter against the resistance of the tension spring moving the wedge at the outer end of the plunger radially. The inclined surface of the latter engages the inclined face of the block carried by the expansible ring, increasing the diameter of the ring so that frictional engagement is made with the interior of the shell pulley. In this condition the two parts are locked together so that the pulley, if it is

building which is to be erected for it at the corner of Walnut street and the canal. The main object of the institute is to educate and train students to be skilled workmen and make them competent to direct the work of others, aiming first to supply the local demand for such men, but the general advancement of the mechanic arts is its fundamental purpose. In all over 30,000 students have completed its courses since its founding in 1828, and many others have had the advantage of its popular lectures, library and industrial museum and expositions. Instruction is provided in the following divisions: A summer school, regular day school (technological high school), regular evening school, special Saturday courses and post-graduate work for special students. The shops and laboratories are unusually well equipped, as the illustrations and text in the catalogue show.

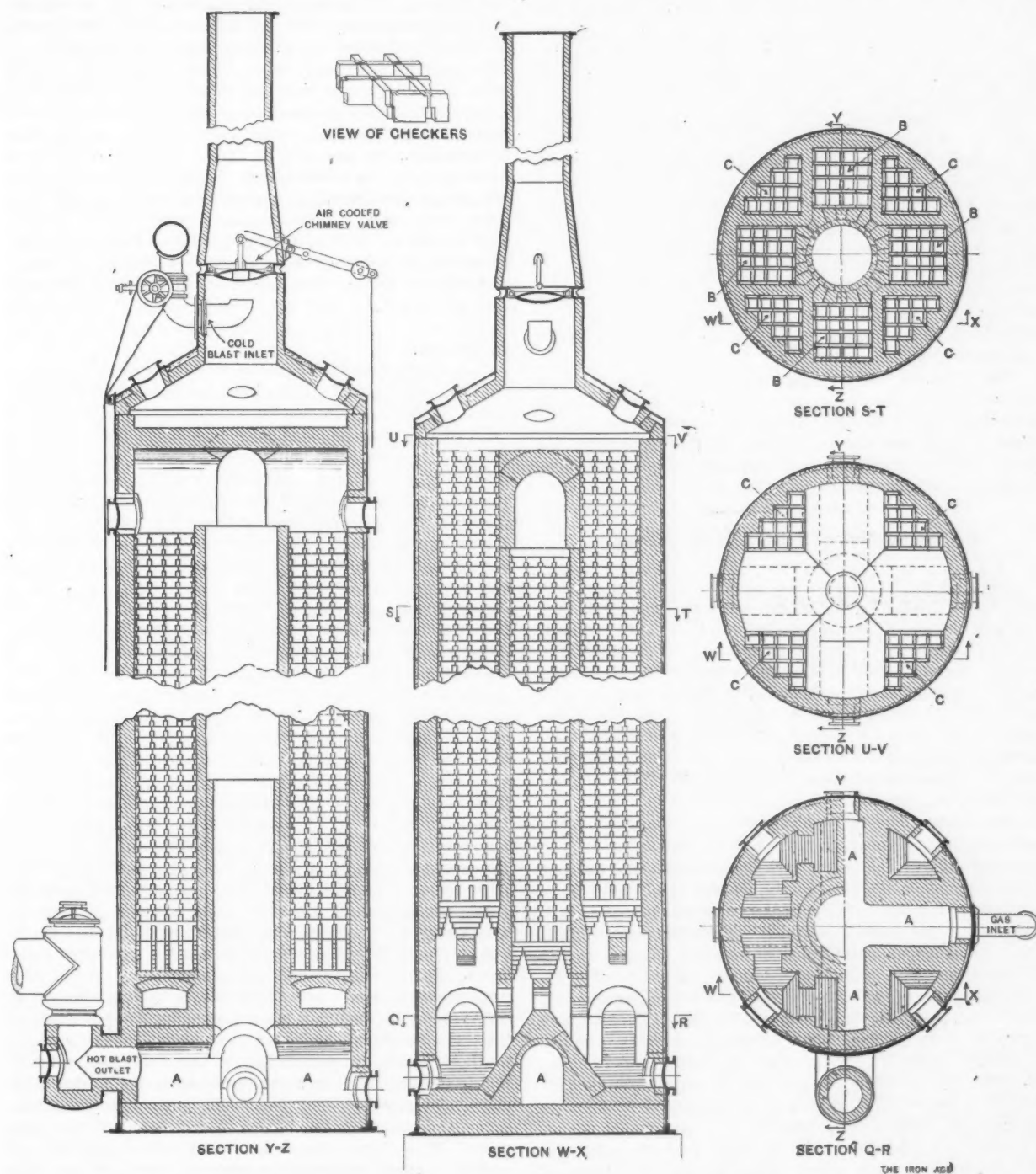
Jacob Richter, 373 Thirty-second street, Milwaukee, Wis., who for more than 25 years was employed at the South Chicago and Milwaukee works of the Illinois Steel Company, at the latter plant for a number of years as chief engineer, is now introducing into the United States a patented process for the manufacture of an adhesive for cementing fine iron ores, coke, coal and blast furnace flue dust into briquettes. This material is produced from the waste liquid of sulphite pulp plants and is being used in Europe with great success.

The Roberts Three-Pass Fire Brick Stove.

A new type of three-pass fire brick stove, for blast furnaces has been designed and patented by Frank C. Roberts, Philadelphia, Pa. It is cylindrical in form, the brickwork being arranged to provide a central cylindrical combustion chamber surrounded by four down-pass regenerators and four up-pass regenerators, the latter communicating with the chimney located on top of the stove. Access to the bottom of the combustion chamber is pro-

meet the objections made to central combustion chamber stoves.

Above the top of the combustion chamber two arched passages are provided at right angles to each other, affording communication between the top of the combustion chamber and the four down-pass regenerators B. The down-pass regenerators communicate as indicated, with the four up-pass regenerators C by means of openings in the dividing walls at the bottom of the stove. The up-pass regenerators are open to the space at the



Vertical and Horizontal Sections of the Roberts Three-Pass Fire Brick Stove.

vided through four arched openings which are marked A in the accompanying illustrations. These extend from the combustion chamber to the outside of the stove. The hot blast outlet is connected to one of these arched openings and the gas inlet to another. In the illustrations the gas inlet is shown at right angles to the hot blast outlet, an arrangement which causes the flue dirt entering with the gas to accumulate in the arched opening directly opposite the gas inlet, whence it may readily be removed through a cleaning door. This arrangement of four openings, through which access may be had to the combustion chamber, facilitates the cleaning of the bottom of the combustion chamber and in this particular is designed to

top of the stove, which in turn communicates with the chimney. The valves are of the usual design, except that the chimney valve is air cooled by action of the chimney in drawing air through the operating lever into the valve and thence into the chimney.

The advantages of the new stove and the considerations which governed in its design and construction are the following: The main walls of the combustion chamber are made with special brick, while the walls dividing the stove into the up and down passes act as stay walls to prevent the deformation of the combustion chamber. No bond exists between the walls of the combustion chamber and the dividing walls, thus allowing the ex-

pansion of the one independently of the other. The dividing walls are held rigidly in place laterally by the checker brick. The arches and walls at the top of the stove forming the passages between the combustion chamber and the down passes B are supported by the third pass generators C which extend to the tops of the arches. The design of brickwork is symmetrical in cross section, whereby the expansion of the brickwork will be uniformly outward from the center of the stove. The checker brick are of the Roberts patented design.

In the matter of cleaning, in addition to the access to the bottom of the combustion chamber afforded by the four arched openings, it is pointed out that all regenerator passes, both up and down, are in contact with the outside of the stove. Thus access to all regenerators may be had directly through the cleaning doors at both the top and bottom of the stove. The illustrations show further that the arched openings leading to the bottom of the combustion chamber are formed within sloping walls extending on both sides from the spaces under the down pass B to the spaces under the up passes C; by this construction the dirt from both the down passes and the up passes is delivered to the four spaces under the up passes, from which it may be removed through the cleaning doors. Access to the tops of the down and up passes is provided through cleaning doors as indicated. The cold blast inlet is located in the base of the chimney under the chimney valve.

The inventor believes that the constructive features present in this design of stove, combined with the large heating surface and the facilities for cleaning the various parts, offers a satisfactory solution of the problem of the three-pass fire brick stove. A plant of this type of stoves is now under construction.

Bonding Nova Scotia Iron Mines.

Advertisements appear in London financial papers offering \$700,000 of a \$1,000,000 issue of 5 per cent. first mortgage bonds of the Annapolis Iron Company, Limited, incorporated in Nova Scotia, with a capital of \$1,000,000. Among the directors of the company are T. J. Drummond, president of the Londonderry Iron & Mining Company, Londonderry, Nova Scotia, and of the Lake Superior Corporation; Edgar McDougall of John McDougall Caledonian Iron Works and Allis-Chalmers, Bullock & Co., Limited; George E. Drummond of Drummond, McCall & Co., Montreal.

The properties of the Annapolis Iron Company, Limited, are located near Nictaux and Torbrook, county of Annapolis, Nova Scotia, and are in contiguous blocks, covering 7 square miles. Dr. Edwin Gilpin, Jr., Deputy Commissioner of Mines for the Province of Nova Scotia, estimates that the deposit contains 300,000,000 tons of iron ore. Analyses of 30,000 tons of the ore shipped to the Londonderry Iron & Mining Company show 55 per cent. metallic iron and 0.30 to 0.40 phosphorus. The ore has been also used by the Nova Scotia Steel Company at Ferrona, Nova Scotia. The development work already completed, including the sinking of shafts, the erection of plant and building of a railroad connection, is estimated to be worth \$100,000. The Dominion & Atlantic Railway has built a spur from its main line to the mines, a distance of 3½ miles. The distance from the mines by this railroad to deep water shipping near the town of Annapolis Royal is about 30 miles. The company says that the mines have been in operation for two years, and are now producing 300 tons of ore a day. It is proposed to increase this to 1000 tons a day by an expenditure of \$355,000. The Londonderry Iron & Mining Company, Limited, whose furnace is 120 miles from the mines, has contracted to buy a minimum of 30,000 tons of ore for three years and a maximum of 50,000 tons a year, at a price which it is stated gives a profit of 70 cents a ton to the Annapolis Iron Company. An estimate of profits is given, showing \$165,000 net per year based on a selling price of 14 shillings a ton, delivered at British port, on an output of 1000 tons a day, or 300,000 tons a year. The price of the ore is put at \$1.05 a ton, f.o.b. ship Annapolis Royal, and the freight to British ports at \$1.75 a ton. However, the management expects the United States and

Canada to take the greater portion of the output, attention being called to the fact that Canadian furnaces receive \$2.10 bounty per net ton of pig iron where Canadian ore is used, as against \$1.10 where foreign ore is used.

The German Steel Syndicate.

Further Details Regarding the Organization.

Further details have been published in Germany with reference to the present organization of the Stahlwerks Verband, the German Steel Syndicate, which more clearly reveal the changes made. The syndicated products include, as before, crude steel of all kinds, and puddled bars and all the products which are derived from them. The division into A and B products has been continued, the former including steel billets, slabs, sheet bars, blooms, &c., as one group; rails, ties and other track material as the second, and beams, angles and other shapes as the third. B products include iron and steel bars, wire rods, plates and sheets, tubes and castings and forgings. Each company is allotted a definite quantity, both of A and of B products, but it is only with regard to the former that the syndicate handles the sales and the prices. The B products are sold directly by the works, unless there is a special syndicate in that particular branch.

The Determination of Allotments.

Important modifications have been made in determining allotments of quantities. Hitherto the allotment of each member in the total sales was based on its total of A products, this total being distributed by the groups of steel billets, &c., track material and shapes. In distributing orders, the total must not be exceeded, and as far as possible they were divided by the allotments in the different groups. This led to inequalities in distributing orders for the different groups, and caused many protests.

In the new agreement, the total allotment of the different groups in A products forms the basis. Each company is permitted to designate one of the three groups as the one in which its capacity is greatest. These allotments are not fixed in figures. They are only expressed by a certain percentage of the total allotment. If, on accounting, it is found that the amount of orders received by a member is less than the amount of his participation, then he is compensated by being given supplementary orders at the next distribution, but these are taken from that group of the A products for which the largest amount of orders remains to be distributed. If the member does not want to accept the supplementary orders thus placed at his disposal from its own maximum capacity group then he loses his claim. In this manner the syndicate management takes a hand in regulating the output in the different groups, and has the power to force the works to accept orders, even when they do not happen to suit them. Any member whose total deliveries of A products during a year are below 95 per cent. of its total allotment, suffers a permanent lowering of its total allotment to the extent of the difference between the actual deliveries and the 95 per cent. of its total allotment. In any case, however, this cutting down cannot carry the participation below 75 per cent. of the allotment. This clause does not apply to the B products, of which members of the syndicate may deliver less than their allotment.

An increase in the allotment of B products can only be decided by the general meeting, and then the total allotments of A products and the total allotments of B products entitle each member to one vote per 10,000 tons. This equality of voting does not hold good in fixing prices for steel billets, blooms, &c. Each member is then entitled to one vote for each 10,000 tons of A products or fraction thereof, while he is entitled to one vote for 15,000 tons or fraction thereof of B products. This arrangement gives a larger number of votes to the makers of A products.

Special Allotments.

In a recent issue of *The Iron Age** a full statement of the individual allotments was made, as they stood on

* May 30, 1907, page 1662.

May 1. A number of special arrangements are in force, however, which include the following:

The Deutsch-Luxemburg Company has the right to carry 45,000 tons of its allotment of steel billets over to bars, but must decide prior to January 1, 1909, the change to be effective on April 1, 1909. Rombach has reserved the right to transfer to steel billets 70,000 tons of its allotment of bars and 45,000 tons of wire rods, the decision to be made prior to October 1, 1907. Dillingen surrenders after January 1, 1908, 25,000 tons of steel billets to be replaced by 5000 tons of track material and 20,000 tons of bars. Dudelingen may after April 1, 1911, replace 30,000 tons of billets by an equal quantity of bars and Lothringen replaces during the period of April 1, 1907, to September 30, 1907, 30,000 tons of bars by an equal quantity of steel billets.

Additional Allotments.

Quite a number of additions to allotments are provided for. After April 1, 1908, Dudelingen secures an addition of 6000 tons of billets, 2000 tons of rails, 2000 tons of shapes and 3000 tons of bars. St. Ingbert, on September 1, gets 2000 tons of billets, 1500 tons of rails and 6689 tons of shapes, surrendering 2198 tons of wire rods. On May 1, 1908, St. Ingbert receives an additional 10,000 tons of billets, 14,345 tons of rails, 8269 tons of shapes, 5886 tons of bars, 1050 tons of wire rods and 450 tons of castings and forgings.

The Maximilians Huette is allotted the following additional quantities: On October 1, 1907, 6650 tons of rails, 7650 tons of shapes and 10,700 tons of bars; on October 1, 1908, 5000 tons of rails, 4000 tons of shapes and 3000 tons of plates, the company relinquishing 2000 tons of bars, and on October 1, 1909, 9000 tons of rails, 8000 tons of shapes, 5000 tons of bars and 3000 tons of plates. For the first year Georgs-Marienhuetten gets an addition of 10,000 tons of bars; for the second year 15,000 tons of bars; for the third year 10,000 tons, and for the fourth year 5000 tons of bars. The newcomer, the Westfaelische Stahl Werke, is allotted 5000 tons of B products at the beginning of the second year, and a like amount at the beginning of the third year.

The Upper Silesia Works.

Special arrangements have been concluded with the works of Upper Silesia. For 1907 the convention by which the Friedenshuette supplied steel billets to the Oberschlesische Eisen Industrie of Gleiwitz is still in force. There has been granted to Friedenshuette, Kattowitz and Oberschlesische E. I., in addition to the 41,000 tons of steel billets, a supplementary quantity of 102,771 tons per annum.

As soon as the deliveries of billets to Gleiwitz diminish, on January 1, 1908, then the works named have the right to the following additional allotments: 2000 tons of track material, 4000 tons of shapes and 4000 tons of B products for Silesia, 2000 tons of tubes and 4000 tons of forgings. As soon as the total shipments of billets to Gleiwitz cease, on January 1, 1910, the works will receive additional allotments of 4000 tons of track material, 8000 tons of shapes, 6000 tons of B products for Silesia, 5000 tons of plates, 4000 tons of tubes and 3000 tons of forgings. The Koenigs und Laura Huette will have the right to 5000 tons beginning January 1, 1908, and to 10,000 tons on January 1, 1910, these allotments being distributed in the same manner as to those of Silesian group.

The Question of Freight.

Under the old Syndicate agreement track material alone was arranged on a uniform basis, the selling price, as well as the accounting figure, being on the basis of f.o.b. on cars at mill. For billets there were a number of basing points for the different consuming districts from which the freights were computed. The selling price was made on the basing point which was most advantageous to the buyer. This method led to serious drawbacks, because the principal makers of billets were in Lorraine and in the Saar District, while the markets were chiefly in the Rhenish Provinces and in Westphalia. The works in the Lorraine District, therefore, had to bear considerable freight charges. In order to moderate this the Syndicate has now undertaken to bear a part of this freight, to the extent of 1 mark per ton.

So far as shapes were concerned, a separate accounting system has existed, for which the basing point for selling was either Thionville or Burbach. But the markets having shifted more and more toward the north and east, the Rhenish mills, and more particularly the Westphalian mills, had a considerable advantage over the mills located near Thionville. Under the old syndicate arrangement this advantage was estimated at 5 marks for Aix-la-Chapelle, 6.50 marks for the mills on the lower Rhine, 7.50 marks for Dortmund and Hoerde and 12.50 marks for Peine. The savings in freight thus obtained were distributed between the members of the group in the proportion of their deliveries. In spite of this the mills at a distance from Thionville still had the advantage. In order to equalize, prices have been increased to the mills which make the deliveries to the extent of 3.50 marks for the south of Germany and 1.50 marks for the intermediary zone to the north.

For exports, formerly each plant had to submit to the disadvantage of its geographical position with reference to a plant better situated for export, but only to the limit of its theoretical share of the export deliveries. When that theoretical share was exceeded the excess loss by freights resulting therefrom was made good to the plant from the fund of profits on freights accruing from shipping shapes to domestic markets. For shipments by sea there were fixed, delivered to the different ports, certain rates of freights; for instance, 4 marks to Rotterdam, 4.50 marks to Antwerp and 5.50 marks to Amsterdam.

An elaborate system has taken the place of this old arrangement. With this object the entire domestic market has been divided into sharply defined zones, and calculations have been made, with the aid of experience gathered, how much each works would have to pay above the maximum rate paid by the syndicate. Similar calculations have been made for the different export ports. The final settlements between the syndicate and its members are arrived at by adding or deducting from the base price at the mill the average sum per ton which represents the losses and profits in handling freights.

Relations with Dealers.

A very serious question was that bearing upon the relations of different companies and the dealers. In some cases very close relations existed. Now every member may designate one firm of dealers, which is allowed to handle 25 per cent. of its allotment of shapes. In one case, until now, the percentage was as high as 60 per cent. The majority of the syndicate members have taken advantage of the new arrangement and have designated a firm of dealers.

The new syndicate agreement has one very important clause. A member is not allowed to sell or to lease its plant to any one not a member, without the consent of the general assembly, nor are members allowed to have their billets finished in outside plants. Krupp, however, has been conceded the right to have his allotment of wire rods rolled on contract, as heretofore.

The arrangements with regard to new competitors have been considerably strengthened. If the new competitor has a capacity greater than 2 per cent. of the total crude steel produced, representing the A and B products of the syndicate, then the general assembly by a three-quarters vote may decree the dissolution of the syndicate. If the new competitor has a capacity in excess of 4 per cent. then the dissolution may be decided upon by a majority vote.

The Société Anonyme d'Ougrée-Marihay of Ougrée, Belgium, is now building a new steel plant at Rodange, in Luxemburg, in syndicate territory. Provision has therefore been made to dissolve the syndicate by majority vote if an arrangement is not arrived at with the company after the new steel plant has been placed in operation.

The Findlay, Ohio, Board of Trade has decided to raise a factory fund of \$100,000, to induce new industries to locate in that city. When the full amount has been pledged, 10 per cent. of the subscription is payable semiannually if needed for immediate use.

THE IRON AGE

1855-1907.

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		HARDWARE EDITOR

The Perils of Steel Works Construction.

That a failure involving millions should occur in the steel trade in the midst of prosperous conditions has been referred to frequently in the past 10 days as an anomaly. As if to accent the paradox the misfortune of the Staten Island enterprise has been spoken of as not only accompanying prosperity, but caused by an excess of it. As the conditions leading to the receivership are examined, in the light of the statements made on behalf of the firm, they suggest that the common idea that a large volume of business at high prices constitutes the best type of prosperity may need some amending.

It is not easy to say just what constitutes the most desirable condition, in respect to volume of business and prices of product, and to wages and other labor factors. The ideal condition rarely exists, but if it were being provided to order it would probably be characterized by free demand, high productive efficiency of plant and labor, prices for raw materials and finished product representing the average of fat and lean years, and the maximum of employment for labor at good wages. We cannot escape the fact that prices much above the average of a period of years have always brought trouble to the iron trade in one form or another. Another generalization may be made, apropos of the Staten Island enterprise—namely, that periods of new construction have peculiar perils for iron and steel companies. This applies alike to new organizations just entering upon iron and steel manufacture and to established companies which are either expanding largely at old sites or seeking eligible locations giving room for such expansion. The common dangers at such times are the depletion of working capital in the case of an old company and the provision of insufficient capital in the case of a new one; the serious problems connected with carrying on manufacturing and construction operations at the same time; the dislocations liable to occur in the iron market, in the alignment of prices of raw materials and finished products; the possibilities of radical changes in business conditions—everything favorable when the new enterprise is begun and everything unfavorable at the time of its completion; the costly mistakes often made by those who venture into untried fields; the necessity of a new producer making concessions in order to secure business, and the slow and expensive process of introducing its product and perfecting a selling organization.

We need not go far back to find conspicuous instances in which undertakings in the steel trade which started with high promise have made with startling rapidity the transition to financial complications from which release was difficult or impossible. The developments of 1903, both in Canada and the United States, are fresh enough in mind to suggest how perilous steel works construction has come to be, unless at the beginning the promoters reverse their habit and deliberately figure that many of their calculations will be defeated. Advantages of loca-

tion, of plentiful and cheap raw materials, of the latest equipment and of even revolutionary economies in processes—all have a fateful way of dropping completely out of the account before the insistent, repeated and apparently endless demand for funds and the skepticism and finally the veto of the bankers. The troubles that in 1903 began to thicken around four important factors in the steel trade of the United States emphasized the need of large leeway on original calculations of the outlay required for expansion. In the nineties a successful Pennsylvania company, in removing to a lake shore site in Ohio, discovered how enormously all estimates of the best engineers can be exceeded, and how the economies of manufacturing from the ground up fail to materialize when demand refuses to absorb the output of long established steel plants. In another case of removal to a lake shore site, the long time required to provide productive plant in place of that which had been dismantled and the vast outlay in excess of original estimates illustrated how essential to a steel company that would come safely through the perils of expansion is the backing of stockholders of large financial ability.

If the roll were called of the important steel companies of the country that have either been formed or have undertaken large construction in the past decade, it would appear that the exceptions are those which have come through without the serious menace or the actual experience of financial difficulties. All this has happened, too, in the face of the popular belief that steel manufacture is the road to sure and large financial returns.

It is the well-known habit of the steel trade to do its new building when prices are high. Equally well known is its liability to sudden changes from activity to inactivity. More and more it has become essential to the holding of a sure place in the business to have practically unlimited capital and large supplies of fuel and ore. This combination makes peculiarly formidable the risks attending the starting of absolutely new enterprises.

British Trade Preference with Canada.

The generally pessimistic view taken by the British press of the outcome of the recent Imperial Conference in London, attended by leading representatives of the colonies, indicates that blood is not telling largely, and will not, in the determination of economic and trade questions. Referring directly to the iron trade the *London Iron and Coal Trades Review* says: "We do not think that any profit or advantage to the great industries which this journal represents can be expected to result from the discussions that have taken place and the resolutions that have been adopted." The *London Statist* points out that the main commercial question involved goes to the root of the British fiscal policy of the last two generations:

In this country for over 60 years we have followed a policy of free trade. The revenue we have needed we have raised by imposing heavy taxes on a very few articles. Consequently it would be a difficult thing, even under the most favorable circumstances, and with the most judicious handling, to induce the country to depart from a policy followed for 60 years. On the other hand, the colonies already are protectionist, and to reduce a little the duties in favor of this country, or to increase a little the duties against foreign countries, is merely a modification of an existing policy, not a complete change of principle. Besides, it would be far from easy for the colonies to remain protectionist and at the same time give to this country an inducement strong enough to counterbalance a tax on food. It is enough to say that whatever may be the ultimate outcome of the fight, it is perfectly certain that no change in the fiscal policy of this country will be made speedily.

In substance the argument is that the mother country has nothing with which to barter for preferential treatment in other markets, since her duties are all for revenue and therefore are all needed.

The *Iron and Coal Trades Review* is disposed to look upon the Canadian protestation of earnest desire to prefer Great Britain as having more of sound than of practical value to British manufacturers. It cites the familiar fact that since 1897, when preferential duties on British products entering Canada went into effect, the United States has obtained a far greater hold on the markets of Canada than it had before. It then adds:

Between 1896 and 1900 the Canadian imports of British rolled iron and steel beams, girders, &c., fell from 9,300,000 lb. to 3,900,000 lb., while the corresponding imports from the United States advanced from 58,863 lb. to 721,765 lb. Since the year when Canada first enunciated a policy of preference, her imports of iron and steel have enormously increased, but the increase has been mainly from the United States and not from the mother country. This has happened because the Canadian Government did not support its preference policy by making it easy for the mother country to compete with a country that skirts the Dominion borders for some thousands of miles. If the Canadian Government had either in its own markets penalized the United States, as against the United Kingdom, or had been less ready to sanction bounties to its own home manufacturers, who were already sufficiently well protected, the conditions would have been different. The total value of the imports into the Dominion of Canada rose from £19,219,028 in 1897 to £25,697,018 in 1905, but no category shows so badly as British iron and steel.

Later on our contemporary finds fault with the Canadians because in carrying out their policy of preferential duties to Great Britain they have denied themselves nothing; the proof cited of this is the increase of imports from the United States. We are to understand, apparently, that the real way to prove special friendship for the British manufacturer is to refuse to have dealings with the wicked American, as if the antidumping legislation, particularly directed against this country, were not sufficient proof of honest intention on this point. But we can even fancy the Canadian powers bluntly asking why they should be expected to make sacrifices for the benefit of British manufacturers, after having handicapped other countries at their custom houses.

It is to be feared that the Canadian and British conceptions of the meaning of preference can never be made to harmonize. Canada prefers British products to all others coming from outside the Dominion, but has no idea of preferring British products above Canadian. Canadian trade for Canadians is the meaning of the bounty legislation, and the gradual reduction in bounties, from which some little comfort seems to be taken in England, cannot be construed as in any wise departing from the policy of building up home industries even at the expense of trade with Great Britain. It appears to be a cardinal principle in Canadian economy that "if any provide not for his own and specially for those of his own house, he hath denied the faith and is worse than an infidel."

The fairness with which the discussion on steel rails has been conducted in some quarters may be judged by the use made of illustrations of rails rolled from piped ingots. "This is the kind of rails the steel companies are furnishing our railroads," is the editorial title given by a railroad journal to one group of broken rails. Similarly we should expect writers of American history to present portraits of convicts with the title, "Representative citizens of the United States," or a group of hospital inmates to illustrate the physical development produced by our climate. That these and all other attacks at home are keenly relished abroad is evidenced each week as foreign engineering journals arrive. The suggestion of a New York newspaper that the tariff on rails be removed so that "sound rails made in England and Germany could be obtained duty free" easily arrests the attention of British editors, one of whom points out that "the tariff duty in shielding rail makers [of the United States] from

competition encourages and permits slovenly work." Naturally the fact that British rails are selling at \$32 at mill, or \$4 above the price in the United States, should not be allowed to break the force of this telling blow.

Student Summer Workmen and a Strike.

The question has arisen in connection with the strike of machinists at Providence, R. I., as to the status of a student workman in a shop where a strike is in progress. Many students of engineering and technical schools pass their summer vacations in manufacturing plants, where they profit largely from contact with practical affairs, receiving a training which supplements that of the schools in ways most valuable not only in after life, but in the school work itself. Some of these young men have ample means and enter upon the summer work from motives of ambition only. But the large majority of student workmen need the funds which they earn, and with some of them the money is absolutely necessary, if they are to complete the education they are striving for.

In Providence a number of students are now employed in shops where men are out on strike. The union officials maintain that students have no business to interfere, by their presence in the works, with the purposes of the striking workmen. The union calls them "strike-breakers." It is easy to see the motive which actuates the attack upon the young men. Nevertheless, there is little of justice in it to a class of students exceptionally worthy of consideration. Their summer employment has come to be an established custom. Each vacation sees hundreds of them employed in manufacturing plants all over the country, especially in those sections where there are engineering schools.

They can consistently answer the attacks of the union with the statement that it is no affair of theirs that a strike has been declared. They have not the remotest connection with it; their presence in the shop is not due to it. Their motive is not to mingle in labor troubles, but to expand the scope of their education and at the same time to earn money with which to complete the courses that will give them the basis upon which to build a successful engineering career. It is absurd to expect that they shall make the sacrifice of their summer work for the sake of a labor movement of which they have little knowledge and in which they may have no preconceived sympathy one way or the other. It is assumed, of course, that the natural instinct of the young men would be with the employer, because their training is one which should lead into paths where they will direct labor, either as employers or in managerial positions for others.

The manufacturer encourages the student to return to his works summer after summer if the student has shown promise in the earlier days of his vacation employment. The union would have the student who has perhaps worked two summers in a shop abandon his opportunity for the third summer, when his services would be worth the maximum to him, as it precedes his senior year, because a strike is on for higher wages or a closed shop or some other issue with which he has no connection whatever, excepting as a temporary workman. That he assists his employer in maintaining a business upset by the going out of a large portion of the men is an accidental circumstance concerning which he has had nothing to do.

Committees of the union have taken up the matter with the Massachusetts Institute of Technology and with the Rhode Island School of Design, in the effort to have the students of these institutions withdrawn from em-

ployment in the affected shops at Providence. It would seem unlikely that such an effort could be successful; that school or college authorities would interfere to the extent of influencing their students to abandon profitable employment for such a reason. Neither would it seem likely that these student workmen could be personally influenced by a plea from union officials.

CORRESPONDENCE.

The Girod Electric Furnace.

To the Editor: My representative, R. H. Wolff, has stated in the last issue of *The Iron Age* some essential facts in reference to the so-called Girod furnace, and has also published the text of my Belgian patent, covering one electrode furnaces. Long before I took out the Belgian patent I experimented with this and almost every other system of electric furnace, and selected for my furnaces and process only what I considered new and found to be valuable.

I have seen many ridiculous statements regarding electric furnaces and electric steel making, partly due to ignorance, and also probably for the purpose of advertising particular furnaces by misrepresentations or distortions of facts that might have called for corrections. I have hitherto refrained from doing so, but the statements in *The Iron Age* of June 6 attributed to J. Sacconney, a French engineer, prompt me to break my silence.

The Single Electrode Furnace Discarded.

The Girod furnace, as described, is an exact copy of the first electrode steel furnace I ever designed and experimented with. After I satisfied myself that a single electrode furnace was a failure, I took out a patent for

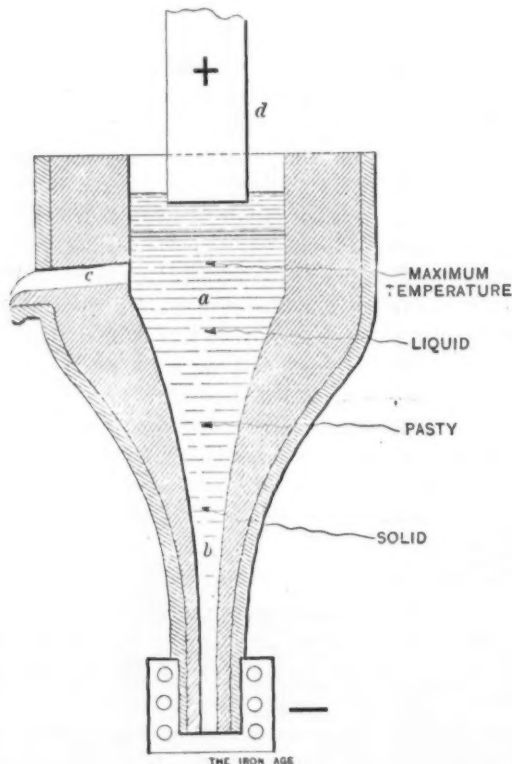


Fig. 1.—Section of a One-Electrode Furnace, Showing the Condition of the Metal at Different Points.

it in Belgium, in order to have it published so as to prevent others from obtaining patents thereon and deceiving the public. I did not cover it elsewhere. Anybody who desires to put up a one-electrode furnace like the Girod is at liberty to do so, as nobody can hold any patents on such a furnace, in view of my Belgian patent, which really gives the use of this kind of steel furnace to the public.

The main reason why I abandoned the so-called Girod furnace, although I had invented it, was due to the fact

that the steel produced was irregular, part of which would undergo chemical reaction and part of it would not. The metal bath remains in an irregular condition, and is divided in different layers of temperature. The top layer is hot, and those underneath grow gradually cooler, until it gets solid at the bottom; hence, I found it almost impossible to produce steel of a uniform character, especially in the case of alloy steel.

I illustrate the foregoing in the two drawings herewith given of the original furnace patented by me, in designating the condition of the different layers of the

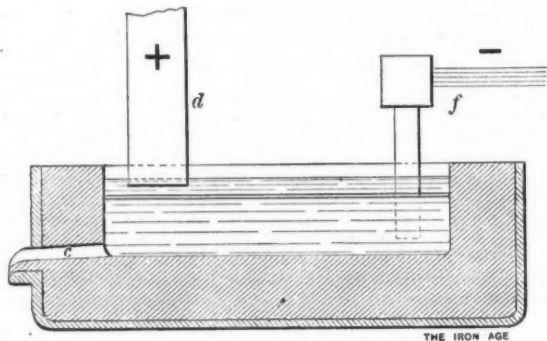


Fig. 2.—Another Arrangement of a One-Electrode Furnace.

metal in the furnace. The description of the furnace, as drawn from the patent papers, is as follows:

In Fig. 1 the maximum temperature is shown to be at *a*. In starting the operation a solid piece is first cast into the furnace at *b*, thus avoiding the contamination of the metal by carbon. A spout for drawing off the slag is provided at *c*. The upper electrode *d* does not carburize the metal, being separated from the metal by a layer of slag which is traversed by electricity. If thought useful the end may be separated into several parts arranged in any desired direction, even horizontally, leaving the vessel open, if necessary, as is shown in Fig. 2, in which a current is carried by the electrode *d* and a large bar of metal, *f*, is plunged into the solid part opposite that electrode. The energy being employed at one end, it is only at this end that the metal is liquid and contact may be made in the solid part with a large bar, which may be cooled as desired.

I also found that it would be too expensive to produce steel by this system, on account of the great loss of heat due to the cooling device.

A statement of M. Sacconney in favor of the Girod furnace that will strike any steel engineer as peculiar is in claiming a lasting hearth of magnesite on account of the cooling. Almost any steel man knows that magnesite does not require any more cooling to last than clams require music to keep silent.

The Héroult Furnace Unjustly Attacked.

M. Sacconney's statements regarding the Héroult furnace, as set forth in the article above referred to, are absolutely untrue. The claim made by him that the reduction of the voltage is an advantage in the Girod furnace is preposterous. Any electrician knows that there is more danger of a total short circuit, in case of one arc, than in case of two arcs in series. As a matter of fact, more than 20,000 heats have been made in the various Héroult plants now in operation, and I have never heard of any accident to the electric machinery, or any trouble due to defective insulation.

Another assertion which I refute is that the regulating devices are located too close to my furnaces. This conclusively shows that M. Sacconney never took the trouble or had an opportunity to investigate a Héroult plant.

Having seen so many statements of performances of a number of electric steel making furnaces, I suggest to people looking for information, and desiring to go into the business, to have capable patent attorneys familiar with the subject look up the patent records and investigate the state of the art, and have also an experienced electro-metallurgist and steel maker watch the operations of the furnace sufficiently long to determine whether it is a commercial success, and obtain reliable facts and figures as to quality of product, cost of production, &c.

DR. P. HÉROULT.

NEW YORK, June 14, 1907.

The Baldwin Locomotive Works and the Metric System.

The New York *Herald* of June 16 contained a most interesting article by a Philadelphia correspondent, from which the following is taken:

Twenty locomotives for France have just been completed here at the Baldwin Locomotive Works in accordance with metric system dimensions, and no more enthusiastic advocates of the universal metrology could be found than are the 19,000 American workmen concerned in the task.

This practical application of the metric system was not due to any desire on the part of the Baldwin Locomotive Works to experiment or to make an innovation, but came from the fact that there was no way of undertaking the work without making it.

The contract, which amounted to \$600,000, had been obtained from the Chemin de Fer d'Orleans, better known as the Paris-Orleans Railroad. The commission was obtained in January, with the understanding that the work was to be completed in six months. The railroad company furnished the mechanical drawings, made in accordance with the metric system.

English Measurements Impracticable.

The first impulse of the Baldwin Works management was to convert all the measurements into the English units. It was evident from only a cursory inspection of them that this would be impossible. There were 500 sheets of the designs, calling for more than 10,000 different parts to each engine. The specifications required the De Glehn type of locomotive, a complicated piece of mechanism, which required especial accuracy of construction.

Even if the interminable fractions of inches which would have resulted from transposition from the metric standard were employed they would only be approximations and not in accordance with the contract. Owing to the great number of the drawings the preparation of the shop designs would have kept 20 draftsmen busy for a month.

There was nothing else to do but to employ the metric system. Six draftsmen working on the locomotive drawings and four on the tender designs were able within a few days to make the designs for shop use. The firm purchased metric standards, prepared metric gauges and templets and every workman received a jointed meter rule graduated to millimeters.

Experience of the Workmen.

There were mechanics who doubted at first if they could use this new fangled measurement. Most of them were converted to the new system the first time they had occasion to use their new rules. The measurements on all the shop drawings were put in millimeters and no reference to the old system appeared anywhere in the figures. The argument, so frequently advanced, that American workmen cannot learn the metric system, and that it is suitable only for theoretical scientific work, met refutation at the Baldwin Works the first day the French contract was undertaken.

Locomotives are made there for all the world, and the workmen pass from one type to another by merely turning over a rule. It was found that not a mistake was made by the use of the metric system. It was the consensus of opinion that the liability to error was far less than under the English scheme of measurement.

Comparisons with the English drawings which were used in the same shops showed that the ones worked out in the metric equivalents were more readily understood.

Especially care must be exercised in following the plans of English engineers because of the small accent marks indicating the feet and inches. Thus the expression "2' 3"

is likely to be read 23 in. when, from frequent handling, the blue prints become soiled. On the French drawings the dimensions were in millimeters and the scales were mostly on the basis of one-tenth or one-hundredth, with occasional drawings scaled to one-fifth. The workmen found that the decimal notation was a great advantage.

Messrs. Huet and Pernaut were sent over by the French company to inspect the various processes of the work. They spoke practically no English, but in their talk with the heads of departments and the foremen the metric system served as a universal language.

Superintendent Vauclain's Attitude.

Samuel M. Vauclain, superintendent of the works and a member of the firm, although he has for many years been an admirer of the metric system, had misgivings at first as to the use of it in the French contract. It did not require much time to remove them. As a member of the Franklin Institute Mr. Vauclain some years ago had advocated that the Government aid the introduction of the universal system of metrology by letting contracts in accordance with the metric measurements and paying a little more for those executed in accordance with it. He does not believe now, in the light of this recent experience, that any subsidy of that kind is necessary. He makes the following statement regarding this contract:

"All the drawings for the 20 De Glehn compound locomotives required were made out in the metric equivalents and were described in the French language. It required little trouble to translate the descriptions into English, but it did not take us long to decide to forego the pleasure of making new drawings with the English measurements. It would have been an enormous task.

"It was considered cheaper to educate the men in the metric system than to pay for the loss of time and money which would have been caused by converting the drawings. There were measurements by the thousands, and to have covered the drawings over with myriads of decimal fractions, which would have resulted from the conversion, was wholly impracticable.

"It was a matter of short time delivery. The locomotives had to be done. We found that the men took to the metric system without any trouble at all. With them to use it once was to understand it. We found that the liability to make mistakes was less and that the decimal arrangement of the measures greatly facilitated the work.

Much Work Done by Gauges.

"As far as the fine calculations were concerned it must be borne in mind that nearly all the work is done by gauges, and that expert measurers are only really required in the gauge department. For many operations it would be a matter of no concern to the workmen whether their gauges were made in accordance with the metric or the English standard.

"I noticed that the men who were using the metric rules formed the idea of a measurement more quickly than they had been in the habit of doing under the English standard. For instance, how does the average man try to find such a measurement as 7 13-16 in.? He thinks of the 7 in. first and then forms the idea of halves, fourths, eighths and sixteenths.

"Try to find the dimension 7 27-32 in. on a foot rule. You reduce the 27-32 to something a little less than 7/8 and you know that it is somewhere between 3/4 and that figure. If you take the metric measure, say, of 195 mm., there is no trouble in at once fixing it upon a rule. The fingers seem to go instinctively to the right place on the metric rule. There is no hesitation.

No Equivalent for the Inch.

"Much has been said about the fact that the metric system has no exact equivalent for the inch. The inch is generally spoken of as 25 mm., although as a matter of fact it is about 25.4 mm.

"These drawings of the French locomotive that I have before me, for instance, give the diameter of a bolt as 25 mm. Such a thing as an inch bolt is unknown, for the name is nothing more than an arbitrary standard. The bolts used in locomotive construction are tapering. The standard taper which we employ is 1-16 in. to the foot. Thus a bolt 1 ft. in length would be 1 1-16 in. in diameter at its top, and 1 3-64 at 9 in. The inch bolt would be an inch only at the threads and it is made to taper so that it can be sent into a hole with driving force. There are always slight fractional variations in practice and the dimension inch as applied to bolts and the like is largely an arbitrary term, as compared with exact measurements."

"How about the contention of certain manufacturers," was asked, "that if the metric system were adopted they

would sustain great loss and master dies, templets and the like of great value would have to be destroyed?"

"As far as I can see," answered Mr. Vauclain, "there would be no loss. Templets are continually wearing out and they must be replaced. They are provided with bushings, for that matter, and it does not take much to run a millimeter out of a bushing.

"If the metric system were in use generally in machine shops it would merely be a question of replacing the bushings with those measured in accordance with the metric unit.

No Trouble to Manufacturers in Adopting the Metric System.

"If the metric system were suddenly adopted, say next week, I do not see that it would disturb manufacturers to any appreciable extent. They would simply have to get along with it. In this case we were compelled by circumstances to build these 20 locomotives in accordance with the metric standard, and we did it. The two standards could be used side by side, as they have been while this contract was being executed, and there would be no inconvenience as far as I can see. There certainly has been no trouble here on account of the two systems.

"Arguments which are advanced by those who oppose the system do not take into account 'shop practice.' For the measurements required of the men here the millimeter is certainly small enough for any variation, and if anything else smaller than that is required it can be had by micrometer.

"Those who insist upon keeping up the traditions do not consider the very plans which they themselves follow. For instance, you cannot drive a $1\frac{1}{4}$ in. pin into a $1\frac{1}{4}$ in. hole. Something has got to give. You can make the pin 5-1000 in. smaller or there can be a variation for the hole. That is a matter of shop practice, and it is not considered necessary to specify in drawings as to the exact sizes of the pin and the hole, beyond putting them at the $1\frac{1}{4}$ in. It is known that this fractional variation must be made.

"It is understood that certain allowances are used for shrinkage, say 1-100 in. or something of that kind. That is made in the gauge room, and the workmen who take that gauge work to it blindly. In shop practice in England there are variations in the making of gauges figured out on so many thicknesses of paper. Many who are talking of the great accuracy of the inch lose sight of the fact that what they speak of as absolutely accurate may be only an arbitrary symbol."

The Pittsburgh Steamship Company, controlled jointly by the Carnegie Steel Company and the United States Steel Corporation, five-sixths of the stock being owned by the former and one-sixth by the latter, did the largest business in 1906 in its history, the total volume of iron ore and other products carried amounting to almost 12,300,000 gross tons. Its fleet on December 31 consisted of 72 steamships and 29 barges. Some of the steamships of this company hold the records on the lakes, one, the W. E. Corey, having carried a total of over 302,000 tons in 1906. This vessel was in commission for 240 days last year and covered over 44,500 miles during the ore carrying season. Some 30 cargoes were delivered, averaging a little over 10,000 tons to the trip. Most of the trips were made from the head of Lake Superior to Lake Erie ports. Several of the company's steamships are 600 ft. long and can carry cargoes of ore in excess of 12,000 tons.

Columbia University, New York, announces that its eighth summer session will begin July 9 and end August 17, covering a period of six weeks. The courses in civil and mechanical engineering cover hydraulics, structures, gas engines and experimental engineering. The purpose of these courses is to meet a demand from instructors in engineering schools and from technical graduates who have entered professional work, and who desire to keep up to date in those special lines of engineering in which so much progress has been made within the past few years.

A Novel Factory Luncheon System.

Something over a year and a half ago the Hartford Machine Screw Company, Hartford, Conn., determined to exclude all employees from factory rooms during the noon hour. It had been found that among the 650 employees of the largest machine screw establishment in the world there were those who through wantonness or carelessness were inclined to break things, and that uncleanness was fostered by a littering of the premises with remnants of food.

A Co-operative Scheme Adopted.

The problem presented in effecting the change was not a simple one. It would not do to eject employees summarily from the premises, leaving them without a place in which to eat their noon meals. By so doing the great majority would be made to suffer for the faults of the few. The element of bettering the shop conditions of the help played an important part in getting at the solution of the matter. A co-operative factory luncheon system was finally evolved by Manager P. B. Gale. Under its workings employees perform all labor and exercise direction. The factory has been emptied of all employees during the noon hour, and at the same time the welfare of the work people has been vastly increased. Not only do they have better and more wholesome food, but the noon hour has been made exceedingly attractive for them in many other ways. Naturally the system has led to most cordial relations between the working force and the management, a sense of more intimate understanding having been engendered, with its accompanying increase in loyalty and general co-operation in all departments of work. The system costs the company a little money, but its total is estimated to be much less than that of losses during the noon hour in the factory under the old order of things, to say nothing of the all essential results in the way of bettering the condition of the employees.

The company finances the plan throughout, but as every department of the work—the cooking, service, catering, &c.—is looked after by regular employees, who devote most of their industrial time to machine work, the working people do not have to depend upon hired help from outside for responsibility as to menu and culinary excellence. The cook is a polisher, who dons his white uniform from 11 to 1 each day. His assistants are similarly taken from their work in the factory, including several men who devote the early afternoon hours to washing dishes. Three girls assist in serving the food at the lunch counter. Each of these people is paid by the company for the time so occupied at the same rate that he or she gets for the remainder of the day. The noon hour wage is at the same rate, and the privilege of a luncheon free of charge constitutes an ample "overtime" allowance. Order in the rooms is looked after by three men, also employees, who receive their regular hourly wage for the hour and a free luncheon.

The Very Reasonable Cost of Food.

A considerable space is set apart for the luncheon and recreation rooms. There are facilities for amusement, in addition to the luncheon privileges. The latter are not meager. A goodly variety of food is served, with seasonable changes. Everything costs $2\frac{1}{2}$ cents—never more, never less. Checks of that denomination are sold to employees, in quantities to suit. The portions are liberal. There are cold meats, all kinds of sandwiches, hot dishes, such as corned beef and cabbage, baked beans, frankfurters, sauerkraut and soups; pies of all sorts, furnished by a woman who specializes on this dish for the restaurants of Hartford's factory district; a variety of fruit; milk, tea, coffee and chocolate. This is a partial list only, but illustrates the kind of food which is furnished at low prices. Everything is well cooked, for the cook has had a broad experience in the past as proprietor of a lunchroom. Neatness prevails everywhere. The materials from which the menu is prepared are all of the best, being bought by the company's purchasing agent. Each morning before 8 o'clock the cook hands a requisition

tion for the day's supplies to the purchasing agent, who places the order by 9, and it is delivered by 11, fresh and ready for the cook.

Each day at 12.05 every employee must be out of the factory, and those who do not go home seek the lunch-room, which might better be called a clubroom. There are four dining rooms—one for the men, another for the girls, a third for the foremen, and the fourth for the office force. All eat the same food; it is good enough for any one. There are no waiters. A line to the lunch counter is formed, passing a desk at which the checks are sold. There is no confusion. The watchmen, or monitors, enforce rules as to conduct, though their services are seldom required, for custom has set its hand upon the rooms, establishing what may and what may not be done. During the winter some 400 employees patronize the restaurant daily. The number falls off with the fair days of warm weather, but not below 250, as a rule. It will be noted that the proportion of the total of 650 people is a large one for a small city, where distances are not great. In fact, it is much larger than was the case when those who took their noon meal at the works had to bring it with them. Some workmen never or seldom patronize the lunch counter, preferring to furnish their own dinners. The usual expenditure for a good noon meal is 10 cents.

Club Privileges.

The rooms have the club atmosphere strongly in evidence. There is a large phonograph, and occasionally vocal music is provided. Once in a while the employees are given an opportunity to listen to a good lecture, a recent instance being one on first aid to the injured, by a prominent Hartford surgeon—a timely topic, as it followed a serious accident at the works. The company provides some 20 magazines and other periodicals, and in addition the Hartford Y. M. C. A. makes a monthly loan of a wagon load of timely literature. There are two shuffleboards, this being a favorite amusement in the vicinity, and a supply of playing cards and checker and chess sets is maintained. There are a number of devotees of chess among the men.

The privileges of the club have increased from time to time. An interesting auxiliary is a barber shop, conducted by two employees, trained barbers, who abandoned their trade because they could make more money, working shorter hours, on a piece work job in the factory. Their prices are reasonable, being 5 cents a shave, 10 cents a hair clip and 15 cents a hair cut. They are busy every noon.

At Easter and Christmas the restaurant affords the company an opportunity to entertain its employees. Last Easter every employee who wished received three hard boiled eggs with luncheon. At Christmas time, both last winter and the winter before, the luncheon entertainment was an elaborate one. Every one was invited to eat as much as he wished of anything that pleased his fancy. Additions were made to the menu, giving it a real Christmas flavor. Cigars were passed among the men and each girl was presented with a box of confectionery. It was a most agreeable experience all around.

The system will be elaborated still more as time goes on. At present the company is planning to establish a tobacco stand in connection with the restaurant, at which employees can get their tobacco, in whatever form they prefer, at cost. As the company will purchase in large lots the price to the men should be low and should constitute a material economy to users of the weed.

As has been stated, the restaurant does not pay expenses. There is a small deficit each year. But its cost, in the eyes of the management, is petty when compared with the intrinsic value to the company, and, most important of all, when compared with the greater welfare of the employees. They keenly appreciate what the company has done for them in this way.

The completion of the Indianapolis Southern Railroad, which goes to the heart of the Indiana coal fields, has revived the hope that pig iron may again be manufactured in Greene County. There is an abundance of

iron ore and limestone in the eastern part of the county, near Tulip, where, years ago, there were furnaces. Transportation difficulties were too great for the successful operation of the furnaces and they were abandoned about 1875. The ore, which is a red hematite, lies in pockets of varying dimensions, and W. S. Blatchley, State Geologist, says average assays show about 38 per cent. metallic iron. With all the raw materials at hand, an estimate made at Linton, the seat of Greene County, and which hopes to benefit from the industry if established, puts the cost of manufacturing a ton of pig iron as follows: Ore, 2 tons, at \$2 per ton; coal, 2 tons at \$1.50 per ton; limestone, 1/2 ton, 50 cents; labor, &c., \$4; total, \$11.50.

PERSONAL.

D. K. Nicholson of Nicholson & Co., Pittsburgh Chain Works, Pittsburgh, Pa., will sail for Europe this week, to be gone about two months.

G. H. Armstrong, formerly manager of the coke department of Matthew Addy & Co., has been appointed general manager of the Pittsburgh-Connellsville Coal & Coke Company, with offices in the House Building, Pittsburgh.

August Heckscher has been elected president of the Central Foundry Company, New York, succeeding A. F. Gartz, who retired some time since.

William Edenborn, a director of the United States Steel Corporation and the dominant interest in the Louisiana Railroad & Navigation Company, has been elected president of the Sheffield Coal & Iron Company, to succeed Leonard Peckitt, who also resigned as a member of the board. The operating headquarters have been removed to Sheffield, Ala.

Albert Maskery, for several years master mechanic of the Struthers, Ohio, plant of the American Sheet & Tin Plate Company, has resigned, and his place has been taken by his brother, Simon Maskery, recently of Court Bridge, Scotland.

Thomas Devlin of the Thomas Devlin Mfg. Company, Philadelphia, Pa., sailed June 15 from New York for a three months' trip abroad.

A. D. Hatfield has resigned as secretary and treasurer of the Wellman-Seaver-Morgan Company, Cleveland, Ohio. He is succeeded by W. H. Cowell, heretofore connected with the Algoma Steel Company, Sault Ste. Marie, Ont., of which Willard H. Sawyer was general manager before going to Cleveland to become president of the Wellman-Seaver-Morgan Company.

Thomas H. Simpson, for a number of years treasurer and general manager of the Michigan Malleable Iron Company, Detroit, Mich., succeeds the late William C. McMillan as president of the company.

Joseph Wharton, Philadelphia, Pa., has sailed for Europe. He will return at the end of July.

W. S. Barstow of W. S. Barstow & Co., 50 Pine street, New York, has returned from a six weeks' business trip through the Pacific Coast States.

D. B. Meacham of Rogers, Brown & Co., Cincinnati, Ohio, sailed on the Carmania this week for a three months' European tour. M. C. Armour, Chicago resident partner in the firm, sails to-day. A. A. Fowler, head of the New York office, is expected back from Europe this week.

Jacob Bewley, Bristol, Tenn., has resigned as assistant vice-president and assistant general manager of the Virginia Iron, Coal & Coke Company and Virginia & Southwestern Railway, to take effect July 1. He will enter the coal business.

James C. Wallace, Cleveland, Ohio, president of the American Shipbuilding Company, sails from New York to-day on a three months' trip to Europe.

F. W. Remick of the banking house of R. L. Day & Co., New York, has been elected a director in the Central Foundry Company.

Adam Tindel of the Tindel-Morris Company and the High Duty Saw & Tool Company, Eddystone, Pa., sailed June 15 from New York for a three months' trip abroad.

NEWS OF THE WORKS.

Iron and Steel.

The Forter-Miller Engineering Company, Hartje Building, Pittsburgh, has a large amount of work on its books, among which are eight Forter water seal gas producers for the Pennsylvania Works of the National Tube Company, Pittsburgh; 12 Forter gas producers for the Shelby Steel Tube Company at Ellwood City, Pa., and three for the National Tube Company at Syracuse, N. Y. The company has installed more than 40 Forter gas producers at the Lorain, Ohio, plant of the National Tube Company, and is now building an additional number of gas producers at this plant. It is also building a Forter gas producer for the N. & G. Taylor Company at Cumberland, Md., and is building 12 Forter gas producers for the C. Pardee Company, Perth Amboy, N. J.

The Youngstown Iron & Steel Roofing Company, Youngstown, Ohio, manufacturer of black and galvanized iron and steel sheets, is adding another hot mill to its plant, making a total of six. Some new heating furnaces are also being built, and other additions to equipment will be made, which will considerably increase the output.

In connection with a recent offering of bonds of the Atlanta, Birmingham & Atlantic Railroad it is stated that interests friendly to the railroad company control the Birmingham Iron Company and the Birmingham Coal Company, and that these two latter companies, which it is proposed to consolidate, are earning at the rate of \$300,000 net a year. Improvements are said to be under way which will increase the output of the Vanderbilt Furnace of the Birmingham Iron Company from 4000 tons a month to 7000 tons.

The Canal Dover Furnace of the Penn Iron & Coal Company, Canal Dover, Ohio, operated by M. A. Hanna & Co., which has been out of blast for relining and repairs for several weeks, will be blown in June 20.

The Alan Wood Iron & Steel Company, Conshohocken, Pa., has purchased a large plot of ground adjoining its Schuylkill Iron Works for future expansion.

At the annual meeting of the Kokomo Steel & Wire Company, Kokomo, Ind., the following officers were elected: President, A. A. Charles; vice-president, A. V. Conradt; secretary, J. E. Frederick; treasurer, G. W. Charles; superintendent, Thomas Harris. Others on the Board of Directors are Richard Ruddell, Kokomo; C. C. Shirley, Indianapolis, and E. T. Taylor, Huntington. The financial statement showed the year to have been by far the most prosperous in the company's history. Extensive improvements are contemplated for the ensuing year, of which a billet mill may be a part.

General Machinery.

The Simonds Mfg. Company, Pittsburgh, manufacturer of gears and special machinery, whose plant was destroyed by fire a few months ago, and which has since been operating two temporary works and handling its business without serious inconvenience to its customers, has arranged to rebuild on the old site. The new plant will consist of a two-story brick building, 75 x 100 ft., which will be equipped with modern motor driven machine tools, and will also have a modern electric lighting plant. All equipment has been purchased and will be installed as soon as possible. Work is progressing rapidly on the new building, and it is expected to have the plant in operation in the latter part of July or early in August.

The Riverside Engine Company, Oil City, Pa., is making some extensions to its plant, consisting of concrete and steel buildings as follows: One 60 x 280 ft., erecting shop, to be equipped with a 35-ton Niles electric traveling crane and necessary machine tools, which have been contracted for; one 60 x 120 ft., two stories, to be used for a receiving and shipping department, pattern shop and power plant; one 25 x 60 ft., three stories, to be used as a storage room for patterns. It is expected that these additions will be completed and the different departments in operation by September 15.

John Dahsen and Wm. Ress have opened a new machine shop at Lincoln, Neb., under the firm name of Dahsen & Ress.

Among recent orders received by the Dayton Pneumatic Tool Company, Dayton, Ohio, was one for Dayton pneumatic chipping and riveting hammers for export to Sweden. Orders have also been received for the company's product from England, Italy and Canada. The company reports a very satisfactory increase in its foreign business.

The Webb City & Carterville Foundry & Machine Company, recently organized at Joplin, Mo., will take over the management of foundry and machine plants at Joplin, Webb City, Carterville and Oronogo. The owners of these plants have associated together for the purpose of better supplying the needs of the mill owners and mine operators. The officers are: President, W. R. Caulkins; vice-president, C. F. Coyne; secretary and treasurer, H. C. Owen; general manager, G. W. Bryant. The Joplin plant will be under the superintendency of E. F. McDonald; Oronogo, I. N. Bonsall; Carterville, R. Loomis; Webb City, Geo. Kessler.

The Eagle Foundry & Machine Company, Fort Scott, Kan., is rebuilding its plant, which was recently destroyed by fire, the

main building of which will be ready for occupancy in about 60 days. The company is operating a temporary foundry at present. The equipment for the new machine shop has been purchased.

The Taylor Engineering Company, New York, has secured a contract for the installation of a 500-ton concentration plant at Mine La Motte, near Fredericktown, Mo.

The Kerr Machinery & Supply Company, 70 East Congress street, Detroit, Mich., which was recently incorporated, handles a full line of factory equipment and supplies, and is the exclusive Detroit agent for the New York Belting & Packing Company, Jewell Belting Company and the Buffalo Scale Company. Alexander M. Kerr is president, Frederick T. Barcroft vice-president, and David M. Kerr secretary and treasurer.

The Lobdell Car Wheel Company, Wilmington, Del., will erect a steel and brick addition to its machine shop, 66 x 122 ft., which will cost about \$10,000. The company is making other improvements to its plant, and now has in course of erection a pattern shop, 40 x 90 ft., of brick and steel construction.

The Butte, Anaconda & Pacific Railroad, Anaconda, Mont., is to make a number of improvements to its terminal in that city, which will include an addition to the roundhouse, enabling it to take twice the present number of engines, and an addition to the shops, doubling the capacity. Plans and specifications for the new shops are now being prepared.

The business of M. T. Davidson, 43 Keap street, Brooklyn, N. Y., has been incorporated with a capital stock of \$400,000 as the M. T. Davidson Company. The manufacture of pumps, condensers, evaporators, &c., will be continued. The directors are M. T. Davidson, W. C. Newell, John Low, W. A. Dresett and Oran Baldwin.

The recent addition of 10,000 sq. ft. of shop area to the plant of the Case Mfg. Company, Columbus, Ohio, has been a source of satisfaction to the company's customers through the expediting of deliveries it is now enabled to make. Of late the company has been the recipient of a particularly large number of important orders. Among the more recent contracts filled were the installations in the Lake Shore & Michigan Southern shops at Collingwood, Cleveland; Pennsylvania Railroad shops at Altoona, Pa.; New York, New Haven & Hartford Railroad shops at Cos Cob, Conn.; General Electric Company's plant at Schenectady, N. Y.; New York Edison Company's power houses in New York and Brooklyn. In all of these plants one or more Case cranes having a lifting capacity ranging from 5 to 75 tons have been erected.

The Cataract Machine & Automobile Company, Niagara Falls, N. Y., has leased the three-story stone building formerly occupied by the Niagara Storage Company on Main street, adjoining the Hydraulic Power Company's plant, and will fit it up for doing a general line of machine work and for the manufacture of land anchors for telephone and telegraph poles for the Niagara Anchor Company.

The Union Traction Company, Anderson, Ind., will expend \$15,000 in the extension of its car shops in that city.

The Wabash Metal Mfg. Company, Wabash, Ind., general machine and foundry work, has been incorporated, with \$15,000 capital stock.

Power Plant Equipment.

The Texico Light & Cold Storage Company, Texico, N. M., recently incorporated with a capital of \$25,000, has begun the erection of a new light and ice plant at Farwell, Texas. The towns of Farwell, Texas, and Texico, N. M., are practically one town, being separated only by the State line. Machinery for the plant, which will have an ice making capacity of 20 tons per day, is on the ground, and the plant will be ready to run within 30 days.

The Pittsburgh office of the Allis-Chalmers Company has received an order from the Jones & Laughlin Steel Company for its new plant at Alliquippa for four 1000-kw. Bullock engine type generators, one 500-kw. generator set, and two Tomlinson barometric tube condensers; also a contract from the Citizens' Light, Heat & Power Company, Johnstown, Pa., for a 1000-kw. steam turbine; Pittsburgh Coal Company, two Allis-Chalmers Corliss engines, direct connected to 500-kw. Bullock railroad type generators; H. C. Frick Coke Company, 1500-kw. generators for mining and coking operations in the new mines being operated at Phillips and Collier, Pa.

Among orders recently received by the Wm. B. Scaife & Sons Company, Pittsburgh, Pa., for Scaife and We-Fu-Go water softening and purifying systems are the following: We-Fu-Go—Liberty Silk Dyeing Company, Allentown, Pa., 600,000 gal.; American Sheet & Tin Plate Company, Guernsey Works, Cambridge, Ohio, for 2000 hp. of boilers, eighteenth contract; Illinois Central Railroad, Decatur, Ill.; 250,000 gal. tenth contract; Crystal Laundry, Cumberland, Md., 3000 gal.; George Wiedeman Brewing Company, Newport, Ky., for 1250 hp. of boilers; National Malleable Casting Company, Indianapolis, Ind., for 1000 hp. of boilers. Scaife—Standard Underground Cable Company, Pittsburgh, Pa., for 500 hp. of boilers; D. M. Bare & Co., Roaring Springs, Pa., for 2500 hp. of boilers.

The Plymouth Lighting Company, Plymouth, Ind., has been incorporated, with a capital stock of \$100,000, to operate a

heat, light and power plant. The directors are L. P. Kleitz, Joseph Emmerling and Paul A. Neuffer.

The Portland Cement Company, Bedford, Ind., will install a power plant.

Foundries.

The New Process Steel Company, Marshall, Mich., maker of high grade crucible steel castings, reference to whose plant extensions was made in a recent issue of *The Iron Age*, will equip the new buildings with machinery from the present plant, making additions thereto by purchase of new equipment from time to time as required. Present plans, however, contemplate the installation of a new dust collecting system.

The American Machine & Mfg. Company will shortly commence the erection of a building for the manufacture of soil pipe and fittings at Charlotte, N. C. The company recently bought the contracting and machinery business of the D. A. Tompkins Company.

The Southern Pipe & Foundry Company, Knoxville, Tenn., has been incorporated with a capital stock of \$50,000 by F. S. Mead, J. G. Simpson, John C. Houk, H. M. Houk and others. A plant will be erected for the manufacture of sewer pipe of various sizes.

The Ironton Malleable Iron Company, recently organized at Ironton, Ohio, is building a plant in that city, the main building of which will be 120 x 360 ft., equipped with an electric traveling crane, and an L to be 95 x 125 ft. A site has been secured and ground has been broken for the new buildings, which will be of steel, and contract for which will likely be placed this week. F. C. Tomlinson is president; H. H. Mittendorf, secretary and treasurer; J. M. Barringer, formerly with the Zanesville Malleable Company, Zanesville, Ohio, vice-president and general manager, and Robert R. Barringer, superintendent. The company will be in the market for considerable equipment for its new plant.

The Lattimer-Williams Mfg. Company, Columbus, Ohio, has recently completed a new foundry, which is now in full operation.

The Solway Foundry Company, Syracuse, N. Y., has increased its capital stock \$50,000.

Bridges and Buildings.

The Republic Construction Company, Cleveland, Ohio, has changed its name to the Republic Structural Iron Works Company, the latter title being deemed more appropriate. The company operates a plant on East Fifty-third street, manufacturing structural steel.

Motors and Small Engines.

The High Point Machine Company, High Point, N. C., will exhibit at the Jamestown Exposition a 35-hp. Corliss engine, miter saw, the rough castings of a motor fresh from the sand and a two-cycle double cylinder rotary valve gasoline engine designed by C. S. Dutton, president, for automobiles and motor boats especially.

Fires.

The piano factory of Winter & Co., New York, was burned June 12, the loss being about \$100,000.

The main building of the plant of the Canadian Shipbuilding Company at Bridgeburg, Ont., was burned June 12, the loss being about \$50,000.

The machine shops of the Greene-Cananea Copper Mining Company, Cananea, Mexico, were burned June 10. The loss is estimated at \$50,000.

The machine shop of the Eastern Steamship Company, Bath, Maine, was damaged \$300,000 by fire June 8.

The plant of the Champion Tool & Handle Company, Evart, Mich., was burned June 15, the loss being about \$20,000.

Hardware.

The Imperial Wheel Company, Flint, Mich., manufacturer of vehicle and automobile wheels, has secured a 5-acre site at Pine Bluff, Ark., upon which it is proposed to erect buildings for a spoke and rim factory. The plant with its machinery equipment will represent an outlay of about \$30,000, and the work of construction is to be begun without delay.

The Oakville Company, Oakville, Waterbury, Conn., manufacturer of wire and metal goods, has increased its capital stock from \$150,000 to \$300,000.

The plant of the American Tri-Metallic Paint Company, Chattanooga, Tenn., will soon be ready for operation. The machinery is now being installed in the main building.

Miscellaneous.

The Wheeling Metal & Mfg. Company, Wheeling, W. Va., has recently purchased additional stamping machinery, which is being installed and which will double the output on certain lines of its products.

The Pittsburgh Coal Company, Pittsburgh, Pa., has about completed building 90 new coke ovens at its Colonial No. 1 plant in the Connellsville region, and these ovens will likely be fired this week.

The S. & I. Company, Springfield, Mass., recently erected and equipped a plant for the manufacture of metal specialties to order, also stampings, punches, dies and special tools, and it is now in complete operation.

The Sheet Metal Specialty Company, Follansbee, W. Va., whose plant was destroyed by fire some time ago, and who recently completed the erection of a two-story brick building, 50 x 150 ft., and one ironclad building, 40 x 50 ft., to be used as a paint shop, has equipped the former with necessary machinery and placed it in operation. In addition to the double and single wall pipe, furnace supplies, &c., formerly manufactured, a line of galvanized products, corrugated pipe, cave troughs, &c., will hereafter be made.

The Southern Car Company, High Point, N. C., is building an addition to its plant.

The Allen Mfg. Company, Nashville, Tenn., manufacturer of steel ranges, has let a contract for a two-story brick addition to its plant, 60 x 80 ft., which will increase its output to 50 steel ranges per day. The lower floor will be used for manufacturing and the upper floor for storage. All contracts for machinery and tools have been placed.

The Hendrick Mfg. Company, Carbondale, Pa., is building an addition to its plant, which will be about the same size as the shop erected two years ago.

The St. Louis Lightning Rod Company, St. Louis, Mo., has secured an entire city block fronting 313 ft. on Trudeau street, where it purposes to build a new plant, plans for which are now being prepared. The new plant will have a capacity about four times as great as that of the present factory at 1901-1905 South Third street.

The Conley Frog & Switch Company, incorporated with a capital stock of \$200,000, is erecting a factory on 3 acres of ground at Station G, New South Memphis, Tenn. It is expected that the plant will be in operation by August 1, manufacturing crasses, switches, switch stands, rail braces, &c. J. E. Conley of Arcola, Ill., is president; F. J. Callahan, of the Geo. C. Callahan Construction Company, Chicago, secretary and treasurer.

The Osterman Mfg. Company, Chicago, whose factory is at West Pullman, Ill., will start a branch factory at Memphis, Tenn., to do car repair work for the railroads entering Memphis.

The Kilbourne & Jacobs Mfg. Company, Columbus, Ohio, has recently sent a consignment of 60 cars to the Guanajuato Mining & Reduction Company, Mexico, and has closed a contract with the Stewart Sugar Company, Cuba, for 50 cars to be delivered in the next few months.

The McCaskey Register Company, Alliance, Ohio, has commenced the erection of a new building, 85 x 130 ft., six stories in height. The new building will have a floor space of about 95,000 sq. ft., or double that of the present plant.

The Monoman Type Setter Company has been incorporated to develop a type setting machine. F. Amos Johnson, 143 Liberty street, New York, is interested.

The Pittsburgh Pole & Forge Company is building an addition, 75 x 82 ft., to its plant at Verona, Pa., which will be equipped with machinery for the manufacture of tubular poles.

Youngstown Sheet & Tube Company Improvements.—The Youngstown Sheet & Tube Company, Youngstown, Ohio, has decided to add one lap weld furnace and two butt weld furnaces to its pipe plant, which will give it a total of three lap weld and four butt weld furnaces. This company is now making from 14,000 to 15,000 tons of iron and steel pipe per month, in sizes ranging from ¼ in. up to 12 in., and when the new furnaces are completed it will be able to make about 25,000 tons. Its skelp mills are making extraordinary records for output, making upward of 30,000 tons of skelp per month. When the new welding furnaces are finished they will about take up the excess skelp capacity, the product of which is now being sold in the open market.

The American Electric Furnace Company, 45 Wall street, New York, publishes an illustrated pamphlet, which it calls Bulletin No. 1, devoted to the performance of induction furnaces for the production of steel, built under the patents of Colby, Kjellin and others. Views are given of a 736-kw. and a 450-kw. induction furnace of the Kjellin type, as operated at European plants, and questions of construction, operation, cost of production and the advantages, as compared with crucible and open hearth practice, are gone into with some detail. The capacity and performance of the various furnaces now in use are given. The pioneer installation in the United States is the 40-kw. induction furnace, built under the Colby patents for the Tacony Works of Henry Disston & Sons, Incorporated, and described and illustrated in *The Iron Age* of June 7, 1906, page 1811.

The Iron and Metal Trades

The Milliken failure has had a somewhat pronounced sentimental effect, both here and abroad, where its significance was not as clearly understood. The fact that the Steel plant and rolling mills have been shut down and that the fabricating shop only will be operated to fill contracts causes some displacements. Incidentally it may be noted that another Steel plant in the district connected with structural mills has also stopped running. The Milliken shut-down has caused the receivers to appear in the market for at least a part of the requirements for Beams, Angles, &c., to carry out contracts, and it seems more than likely that the tonnage will go to the Central West.

The closing down will also make a gap in the order books of the blast furnaces who had contracted to sell metal at the close of the year. This has not had any effect as yet on the Eastern Basic Pig Iron market, because the Steel mills are still crowding the furnaces for deliveries and the diversion of the Iron will rather help than otherwise. What influence it will have on more distant deliveries remains to be seen.

Nothing has come to light as yet concerning the material used by the Milliken plant for filling foreign orders, which were quite considerable.

The Pig Iron markets are dull throughout the country, and in some localities are distinctly weaker, and it is particularly the premiums on prompt delivery which are affected adversely. For forward delivery sellers are conservative and buyers maintain an attitude of indifference. The foreign markets have declined to the basis at which the Germans have been buyers during recent months in England. It remains to be seen whether now they will put the peg lower.

Under more liberal offerings by Steel works, East and West, the Steel market has weakened perceptibly. Some outlet has been found to Canada, where the antidumping clause has been temporarily suspended as to Steel Billets, because the Canadian Steel works are unable to take care of the requirements of consumers. Before the end of the month the contract for 71,000 tons of Rails for the Grand Trunk Pacific will be given out. This must go to the Canadian works to the extent of their ability to roll them, and therefore there is little chance that any part of it will go to our mills. However, it may lead to a further diversion of Billet business to this country.

The demand for Steel Rails for delivery during 1908 from our own railroads has been to some extent held up, owing to the uncertainty as to the new specifications. When that question is settled the problem will need a solution at what advance above the current prices the rail mills will accept the much more onerous conditions. During the past week the only sale of consequence for next year's delivery was 10,000 tons for the Kansas City Southern.

The volume of business coming to the Structural mills is very fair. Among the contracts closed are 2700 tons for the American Steel & Wire Company and the American Sheet & Tin Plate Company, 6000 tons for bridge work on the Great Northern, 1200 tons for the Mills Building in San Francisco, 3000 tons for an office building in a Western city and additional work for the Pacific extension of the St. Paul road.

Thus far lake shipbuilders have booked orders for four boats.

In the lighter branches the volume of business keeps up well. The buying of Hoops and Bands for fall delivery has started, and it is intimated that there may be a moderate advance in Cotton Ties on July 1. However, the bulk of the season business is now in hand. Among the larger orders recently taken by the makers of Merchant Pipe is 200 miles of 4, 6 and 8 in. Line Pipe.

Reports that a leading interest has made large purchases of spot Coke to stay the demoralization are denied. Spot Coke is still selling at \$1.90 at oven.

The deadlock in the Copper market continues. It seems a question as to what price will induce the large consumers to surrender their policy of buying only from hand to mouth. There is little disagreement, even among sellers, that the price must be lowered. It is only a question of how much. Exporters of Iron and Steel deplore the high prices for Copper since they have checked new construction in the electrical field in many parts of the world.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

	June 19, 1907.	June 12, 1907.	May 22, 1907.	June 20, 1906.
PIG IRON, Per Gross Ton:				
Foundry No. 2, Standard, Philadelphia	\$24.50	\$24.50	\$25.50	\$18.50
Foundry No. 2, Southern, Cincinnati	23.75	24.25	24.25	16.25
Foundry No. 2, Local, Chicago	26.00	26.50	26.50	18.00
Bessemer, Pittsburgh	24.15	24.40	24.15	18.35
Gray Forge, Pittsburgh	23.15	23.15	22.85	16.35
Lake Superior Charcoal, Chicago	27.50	27.50	27.50	19.00
BILLETS, &c., Per Gross Ton:				
Bessemer Billets, Pittsburgh	29.50	29.50	30.00	27.00
Forging Billets, Pittsburgh	34.00	34.00	35.00	33.00
Open Hearth Billets, Phila.	32.50	32.50	32.50	29.00
Wire Rods, Pittsburgh	37.00	37.00	37.00	34.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00
OLD MATERIAL, Per Gross Ton:				
Steel Rails, Melting, Chicago	19.00	18.50	18.50	14.00
Steel Rails, Melting, Phila.	20.00	20.00	19.50	16.25
Iron Rails, Chicago	24.50	24.50	24.50	21.25
Iron Rails, Philadelphia	27.50	27.50	27.50	20.50
Car Wheels, Chicago	25.50	25.50	25.50	18.00
Car Wheels, Philadelphia	25.50	25.50	25.50	16.75
Heavy Steel Scrap, Pittsburgh	18.25	18.50	18.00	15.50
Heavy Steel Scrap, Chicago	16.50	16.00	15.50	13.00
Heavy Steel Scrap, Philadelphia	18.75	19.00	19.00	15.75

FINISHED IRON AND STEEL.

Per Pound:	Cents.	Cents.	Cents.	Cents.
Refined Iron Bars, Philadelphia	1.83½	1.83½	1.83½	1.63½
Common Iron Bars, Chicago	1.78	1.78	1.76½	1.66½
Common Iron Bars, Pittsburgh	1.70	1.75	1.75	1.50
Steel Bars, Tidewater, New York	1.86	1.84½	1.84½	1.64½
Steel Bars, Pittsburgh	1.60	1.60	1.60	1.50
Tank Plates, Tidewater, New York	1.86	1.86	1.84½	1.74½
Tank Plates, Pittsburgh	1.70	1.70	1.70	1.60
Beams, Tidewater, New York	1.86	1.86	1.84½	1.84½
Beams, Pittsburgh	1.70	1.70	1.70	1.70
Angles, Tidewater, New York	1.86	1.86	1.84½	1.84½
Angles, Pittsburgh	1.70	1.70	1.70	1.70
Skelp, Grooved Steel, Pittsburgh	1.90	1.85	1.85	1.57½
Skelp, Sheared Steel, Pittsburgh	1.90	1.90	1.90	1.60

SHEETS, NAILS AND WIRE.

Per Pound:	Cents.	Cents.	Cents.	Cents.
Sheets, No. 27, Pittsburgh	2.50	2.50	2.50	2.40
Wire Nails, Pittsburgh	2.00	2.00	2.00	1.85
Cut Nails, Pittsburgh	2.05	2.05	2.05	1.75
Barb Wire, Galv., Pittsburgh	2.45	2.45	2.45	2.30

METALS, Per Pound:

	Cents.	Cents.	Cents.	Cents.
Lake Copper, New York	23.75	24.25	24.62½	18.62½
Electrolytic Copper, New York	22.50	23.00	23.75	18.62½
Spelter, New York	6.40	6.50	6.45	6.25
Spelter, St. Louis	6.35	6.40	6.35	6.10
Lead, New York	5.75	5.75	6.00	5.90
Lead, St. Louis	5.65	5.65	5.92½	5.90
Tin, New York	43.25	42.10	43.75	38.60
Antimony, Hallett, New York	12.00	14.00	17.00	24.00
Nickel, New York	45.00	45.00	45.00	45.00
Tin Plate, New York	\$4.09	\$4.09	\$4.09	\$3.94

Chicago.

FISHER BUILDING, June 17, 1907.

Specifications on contracts for finished products are being furnished in practically all departments without undue hesitation. There is, on the whole, however, a very perceptible slowing up in the crowding place, at which new business has been coming into the market. Owing to extended future bookings, whatever decrease there may be in the tonnage of new orders or contracts is not as yet reflected in a decided and general improvement of delinquent mill shipments. In Merchant Pipe the mills seem to be as far from a resumption of normal delivery schedules as ever, and the demand in this particular department shows no impairment. In the absence of any specific delivery dates large orders covering extended future requirements are being booked for shipment at the earliest assignable time. Transactions in Standard Section Rails were, for the week under review, on a par with the preceding week and were limited to one lot of 10,000 tons sold by the Illinois Steel Company. Outside of a few inquiries for fair sized requirements in street railroad sections there is no evidence of activity in traction Rails. A growing disposition to postpone building operations already planned is retarding the closure of Structural Material contracts, though there is a considerable tonnage coming forward for use in bridges. The Pig Iron market remains inactive, and because of the meager demand spot prices have softened. Buyers manifest little interest in contracts for forward delivery, and both sides of the market are lined up in an attitude of waiting on future developments.

Pig Iron.—The past week has been one of extreme quietness in the Pig Iron market. That melters are well supplied for present needs is evident from the very light demand for spot Iron. Sales of this character have been few and comprise small requirements represented by scattered car lot orders. Moreover, the effect of this inactivity in early deliveries is reflected in a softening of prices, which have declined 50c. a ton on Southern Iron, \$22, Birmingham, being freely named for spot and June delivery of No. 2 Foundry. Spot Northern No. 2, which has for some time been strong at \$27 to \$27.50, is quoted as low as \$26 to \$26.50. So far no recession of prices for forward deliveries is shown in quotations reported, but no sales of moment are in evidence for any of the future periods. No further talk of more importations of foreign Iron is heard, and it is believed by those in close touch with the trend of affairs that the possibility of further transactions of this character during the rest of the year are remote. Although the strength of future delivery prices is seemingly unshaken as yet, their stability will in some measure depend on the extent of foundry consumption for the remainder of the year. Should it decline in a marked degree, third quarter stocks will in many cases stretch over into the next division and shorten by so much the prospective demand. Forward delivery prices are about as follows: Southern No. 3 Foundry, third quarter, \$21 to \$21.50; fourth quarter, \$20 to \$21; first quarter, 1908, \$18.50, Birmingham. For Northern No. 2 Foundry and Malleable Bessemer \$25.50 is asked for last quarter. The quotation of \$22.50 for these grades in last week's report was an error and should have been \$25.50. The following prices are for June delivery, f.o.b. Chicago:

Lake Superior Charcoal.....	\$27.50 to \$28.00
Northern Coke Foundry, No. 1.....	26.50 to 27.00
Northern Coke Foundry, No. 2.....	26.00 to 26.50
Northern Coke Foundry, No. 3.....	25.50 to 26.00
Northern Scotch, No. 1.....	26.50 to 27.00
Ohio Strong Softeners, No. 1.....	26.00 to 26.50
Ohio Strong Softeners, No. 2.....	25.50 to 26.00
Southern Coke, No. 1.....	26.85 to 27.35
Southern Coke, No. 2.....	26.35 to 26.85
Southern Coke, No. 3.....	25.85 to 26.35
Southern Coke, No. 4.....	25.35 to 25.85
Southern Coke, No. 1 Soft.....	26.85 to 27.35
Southern Coke, No. 2 Soft.....	26.35 to 26.85
Southern Gray Forge.....	24.85 to 25.35
Southern Mottled.....	24.85 to 25.35
Malleable Bessemer.....	26.00 to 26.50
Standard Bessemer.....	24.80 to 25.30
Jackson Co. and Kentucky Silvery, 6 %	31.30 to 31.80
Jackson Co. and Kentucky Silvery, 8 %	32.30 to 32.80
Jackson Co. and Kentucky Silvery, 10 %	33.30 to 33.80

Billets and Rods.—The continuance of a large demand for Wire products prevents any pronounced easement of the Rod situation. No transactions of note are reported in this market, and prices remain at from \$37 to \$38, Pittsburgh. There is some inquiry for Forging Billets, but sales have been limited to lots of small tonnage. The range of prices quoted is from \$36 to \$38, the latter applying to small lots for prompt shipment.

Rails and Track Supplies.—Of Standard Section Rails, 10,000 tons comprise the week's bookings so far reported. This tonnage was placed with the Illinois Steel Company by a Western road for 1908 delivery. There are a number of inquiries in the market from street railroad interests for Rails and Track Supplies, but no sales of notable tonnage have resulted. We quote as follows: Angle Bars, accompanying Rail orders, 1907 delivery, 1.65c.; car lots, 1.90c. to 1.95c.; Spikes, 2.35c. to 2.45c., according to delivery; Track Bolts, 2.65c. to 2.75c., base, Square Nuts, and 2.80c. to 2.90c., base, Hexagon Nuts. The store prices on Track Supplies range from 0.15c. to 0.20c. above mill prices. Light Rails, 30 to 45 lb. sections, \$35; 25-lb., \$36; 20-lb., \$37; 16-lb., \$38; 12-lb., \$39, f.o.b. mill. Standard Sections, \$28, f.o.b. mill, full freight to destination.

Structural Material.—Of the work planned in building structures there is an increasing amount being held up. These postponements not only affect some of the more conspicuous undertakings of large tonnage, but it is evident from the decrease of small contracts coming up that they extend to the rank and file of building enterprises throughout the country. Structural Shapes for bridge building are more in demand, there being quite a little activity in this direction. Contracts for over 6000 tons of bridge material have been placed by the Great Northern Railway with the American Bridge Company. The mills are not far short of normally prompt shipments, but are well supplied with specifications to occupy their capacities. Prices from store are quoted without change at 2.05c. to 2.10c., and mill prices, at Chicago, are as follows: Beams and Channels, 3 to 10 in., inclusive, 1.88c.; Angles, 3 to 6 in., 1/2-in. and heavier, 1.88c.; larger than 6 in. on one or both legs, 1.98c.; Beams, larger than 15 in., 1.98c.; Zees, 3 in. and over, 1.88c.; Zees, 3 in. and over, 1.98c., in addition to the usual extras for cutting to extra lengths, punching, coping, bending and other shop work.

Plates.—Specifications against contracts constitute a large part of the incoming business, new business being less freely offered. The principal mills are pretty well filled with orders for the remainder of the year, and regardless of any

falling off in demand not much betterment in deliveries can be hoped for in the immediate future. Prices, somewhat in excess of the ruling quotation, are still paid for prompt shipment, and store stocks are well patronized for immediate wants. We quote for future delivery as follows: Tank Plates, 1/4-in. and heavier, wider than 6 1/4 and up to 100 in. wide, inclusive, car lots, Chicago, 1.88c. to 2.08c.; 3-16 in., 1.98c. to 2.18c.; Nos. 7 and 8 gauge, 2.03c. to 2.23c.; No. 9, 2.13c. to 2.33c.; Flange quality, in widths up to 100 in., 1.98c. to 2.08c., base, for 1/4-in. and heavier, with the same advance for lighter weights; Sketch Plates, Tank quality, 1.98c. to 2.18c.; Flange quality, 2.08c. Store prices on Plates are as follows: Tank Plates, 1/4-in. and heavier, up to 72 in. wide, 2.20c. to 2.30c.; from 72 to 96 in. wide, 2.30c. to 2.40c.; 3-16 in., up to 60 in. wide, 2.30c. to 2.40c.; 72 in. wide, 2.50c. to 2.65c.; No. 8, up to 60 in. wide, 2.35c. to 2.45c.; Flange and Head quality, 0.25c. extra.

Sheets.—The demand for Sheets shows greater firmness than is apparent in the general run of mill products. In addition to heavy specifications, new orders of large aggregate tonnage are being received. Users of Galvanized Sheets are still obliged to anticipate their wants many weeks in advance, and jobbers are constantly confronted with the difficulty of maintaining a suitable assortment of sizes and gauges. We quote mill shipments as follows, Chicago: Blue Annealed, No. 10, 2.03c.; No. 12, 2.08c.; No. 14, 2.13c.; No. 16, 2.23c.; Box Annealed, Nos. 17 to 21, 2.53c.; Nos. 22 to 24, 2.58c.; Nos. 25 to 26, 2.63c.; No. 27, 2.68c.; No. 28, 2.78c.; No. 29, 2.88c.; No. 30, 2.98c.; Galvanized Sheets, Nos. 10 to 14, 2.83c.; Nos. 15 and 16, 3.03c.; Nos. 17 to 21, 3.18c.; Nos. 22 to 24, 3.33c.; Nos. 25 and 26, 3.53c.; No. 27, 3.73c.; No. 28, 3.93c.; No. 30, 4.43c. Sheets from store: Blue Annealed, No. 10, 2.50c.; No. 12, 2.55c.; No. 14, 2.60c.; No. 16, 2.70c.; Box Annealed, Nos. 18 to 21, 2.80c.; Nos. 22 to 24, 2.85c.; No. 26, 2.90c.; No. 27, 2.95c.; No. 28, 3.05c.; No. 30, 3.45c.; Galvanized from store: Nos. 10 to 20, 3.30c. to 3.35c.; Nos. 22 to 24, 3.55c. to 3.60c.; No. 26, 3.65c. to 3.70c.; No. 27, 3.85c. to 3.95c.; No. 28, 4.15c.; No. 30, 4.65c. to 4.70c.

Bars.—A good buying interest continues to contribute to the activity of Steel Bars. The market for the past week, though unsupported by orders of notable tonnage, has been well supplied with numerous bookings of small lots which total a good business. These have come from diversified sources, with no single interest largely predominating. Prices are well maintained. Quotations, Chicago, are as follows: Steel Bars, 1.78c., with half extras; Iron Bars, 1.78c.; Hoops, 2.18c., extras as per Hoop card; Bands, 1.78c., as per Bar card, half extras; Soft Steel Angles and Shapes, 1.88c., half extras. Store prices are as follows: Bar Iron, 2.10c. to 2.25c.; Steel Bars, 2c. to 2.10c.; Steel Bands, 2c., as per Bar card, half extras; Soft Steel Hoops, 2.35c. to 2.45c., full extras.

Merchant Pipe.—There is no indication of decrease in the urgency of the demand for Pipe. In view of the harassing delays experienced during the present season, many consumers are increasing the size of their orders in an effort to forestall their future wants. It is doubtful if the mill output yet exceeds in volume the tonnage of new business offered. The following mill discounts are quoted: Black Pipe, 3/4 to 6 in., 71.2; 7 to 12 in., 68.2; Galvanized, 3/4 to 6 in., 61.2. These discounts are subject to 1 point on the base. From store in small lots, Chicago jobbers quote 68 per cent. on Black Steel Pipe, 3/4 to 6 in. About 4 points advance above these prices is asked for Iron Pipe.

Boiler Tubes.—Specifications from boiler shops are accompanied with requests for the most prompt execution possible. A strong demand exists for both Merchant and Locomotive Tubes. Jobbers' stocks are heavily drawn upon for immediate needs, and in some sizes, especially 2 in., there is a marked scarcity. Mill quotations for future delivery on base sizes are as follows: 2 3/4 to 5 in., in carload lots, Steel Tubes, 63.2; Iron, 50.2; Seamless, 49.2; 2 1/2 in. and smaller, and lengths over 18 ft., and 2 1/2 in. and larger, and lengths over 22 ft., 10 per cent. extra. Store prices are as follows:

	Steel.	Iron.	Seamless.
1 to 1 1/2 in.....	35	35	35
1 1/2 to 2 1/4 in.....	50	35	35
2 1/4 in.....	52 1/2	35	35
2 1/2 to 5 in.....	60	47 1/2	47 1/2
6 in. and larger.....	50	35	..

Merchant Steel.—A fairly active demand from both the jobbing and consuming trade is reported in special shapes and grades. There is no marked movement in any individual line. Quotations are as follows: Planished or Smooth Finished Tire Steel, 1.98c.; Iron Finish, up to 1 1/2 x 1/2 in., 1.93c.; Iron Finish, 1 1/2 x 1/2 in. and larger, 1.78c., base; Channels for solid Rubber Tires, 3/4 to 1 in., 2.28c., and 1 1/2 in. and larger, 2.18c.; Smooth Finished Machinery Steel, 2.18c.; Flat Sleigh Shoe, 1.93c.; Concave and Convex Sleigh Shoe, 2.08c.; Cutter Shoe, 2.46 1/2c.; Toe Calk Steel, 2.33c.; Railroad Spring, 1.98c.; Crucible Tool Steel, 7 1/4c. to 8c., and still higher prices are asked on special grades. Shafting, 50 per cent. off in car lots and 45 per cent. in less than car lots, base territory.

Cast Iron Pipe.—With no municipal lettings in hand

or in sight, the market is wholly dependent upon small routine orders for its support. There is, of course, quite a number of such orders constantly going through, but the tonnage involved is light. At the present high prices of Pig Iron the outlook for a revival of interest in buying is not flattering. We quote per net ton, Chicago, as follows: Water Pipe, 4-in., \$38 to \$39; 6 to 12 in., \$37 to \$38; 16-in. and up, \$36 to \$37, with \$1 extra for Gas Pipe.

Coke.—With an extraordinary output of Coke, and only a moderate demand, prices are naturally somewhat weaker. Connellsville 72-hr. Foundry Coke is quoted at \$3 to \$3.25 at oven.

Old Material.—The market has not only held its own, but on some grades, notably Heavy Melting Steel, Rolling Mill Stock and Malleables, has climbed up a peg. Buying interests have by their urgency boosted the market, which responds to each fresh purchase with an upward movement. It is believed, however, that the top limit has been reached, and a sharp reaction is confidently expected. A lot of over 700 tons of No. 1 Cast sold last week for \$20, but in view of the softer tone of spot Iron the transaction could not now be duplicated. Prices are revised, and the following quotations are per gross ton, f.o.b. Chicago:

Old Iron Rails.....	\$24.50 to \$25.00
Old Steel Rails, rerolling.....	19.25 to 19.75
Old Steel Rails, less than 3 ft.....	19.00 to 19.75
Relaying Rails, standard sections, subject to inspection.....	28.00 to 30.00
Old Car Wheels.....	25.50 to 26.00
Heavy Melting Steel Scrap.....	16.50 to 17.00
Frogs, Switches and Guards, cut apart.....	17.50 to 18.00
Mixed Steel.....	12.50 to 13.00

The following quotations are per net ton:

Iron Fish Plates.....	\$19.00 to \$20.00
Iron Car Axles.....	26.00 to 26.50
Steel Car Axles.....	21.00 to 21.50
No. 1 Railroad Wrought.....	16.50 to 17.00
No. 2 Railroad Wrought.....	15.50 to 16.00
Railway Springs.....	16.50 to 17.00
Locomotive Tires, smooth.....	17.50 to 18.00
No. 1 Dealers' Forge.....	13.50 to 14.00
Mixed Bushing.....	12.00 to 12.50
Iron Axle Turnings.....	12.50 to 13.00
Soft Steel Axle Turnings.....	12.50 to 13.00
Machine Shop Turnings.....	12.50 to 13.00
Cast Borings.....	10.50 to 11.00
Mixed Borings, &c.....	10.50 to 11.00
No. 1 Mill.....	10.00 to 10.50
No. 2 Mill.....	9.00 to 9.50
No. 1 Boilers, cut to Sheets and Rings.....	11.50 to 12.00
No. 1 Cast Scrap.....	19.00 to 19.50
Stove Plate and Light Cast Scrap.....	15.50 to 16.00
Railroad Malleable.....	18.00 to 18.50
Agricultural Malleable.....	16.50 to 17.00
Pipe and Flues.....	12.50 to 13.00

Metals.—The market is not only extremely quiet, but prices of the leading Metals have declined. Revising prices, we quote as follows: Casting Copper, 24½¢. to 25¢.; Lake, 26¢. to 26½¢., in car lots for prompt shipment; small lots, ¼¢. to ¾¢. higher; Pig Tin, car lots, 43½¢.; small lots, 44½¢.; Lead, Desilverized, 6.25¢. to 6.35¢., for 50-ton lots, Corroding, 7¢. to 7.10¢., for 50-ton lots; in car lots, 2¼¢. per 100 lb. higher; Spelter, 6.87½¢.; Cookson's Antimony, 24½¢., and other grades, 23½¢. to 24¢.; Sheet Zinc is \$8.60 list, f.o.b. La Salle, in car lots of 600-lb. casks. On Old Metals we quote: Copper Wire, 20¼¢.; Heavy Copper Wire, 20½¢.; Copper Bottoms, 18¼¢.; Copper Clips, 19¢.; Red Brass, 18¼¢.; Red Brass Borings, 16½¢.; Yellow Brass, 15½¢.; Yellow Brass Borings, 14¼¢.; Light Brass, 12½¢.; Lead Pipe, 5¼¢.; Tea Lead, 4.90¢.; Zinc, 5.15¢.; Pewter, No. 1, 30¢.; Tin Foil, 35¢.; Block Tin Pipe, 40¢.

Philadelphia.

PHILADELPHIA, PA., June 18, 1907.

The near approach of midsummer is developing problems which will require serious consideration during the next couple of months. This phase of the situation has been discussed so frequently and so carefully that there is hardly anything to be said without reiterating what has been gone over before. The absorbing question is, Will prices for Pig Iron be maintained or not? This is something which depends upon contingencies too uncertain, and possibly too remote, to warrant anything like a distinct answer. There are some features, however, which are so self-evident that they may be touched upon without assuming the gift of prophecy. One is that we are producing more Pig Iron than ever before, and judging from the scarcity of the article we are consuming more. These features are a fair offset, one to the other, which leaves guessing in regard to the proportions between supply and demand about as uncertain as for the past several months, and yet a trade which depends as largely upon future conditions as the Iron trade does must in some measure be governed by opinions in regard to the way things are shaping themselves. Thus, for instance, production, which has been gaining for some time, leads to the question whether consumption will be maintained in like proportion. The enormous business of the last half of 1906 and the first half of 1907 was the direct result of unprecedentedly large crops. The question for consideration to-day is whether the 1907 crops will match up with those

of 1906, but, if smaller, what effect that will have upon the demand for Iron and Steel. It is certainly true that so far the reported injury to crops does not appear to have affected the Iron and Steel markets in the slightest degree, but with Pig Iron \$6 to \$8 a ton higher than it was a year ago, with an estimated deficiency of \$300,000,000 to \$400,000,000 in the yield from wheat and cotton, it is difficult to see how prices of Pig Iron can maintain their present high level. Yet, in spite of all that has been said, they may do so for quite a period of time. The fact that the furnaces have sold 80 to 90 per cent. of their production for the last half of 1907 seems to be a potent argument against any decline during the next few months. Yet, if there is going to be a return to the conditions of 1905 and the early portion of 1906, it is difficult to see how they can be maintained. The country is in need of much additional equipment and would doubtless provide for it if monetary conditions permitted. The flotations of new securities since the first of the year, however, have been \$800,000,000, but the misfortune is that this money has been more for the purpose of taking up maturing loans than to provide for new equipment and other facilities which are absolutely essential. If such conditions applied to the United States only they might, perhaps, be overcome. But Europe is evidently in a close pinch and has not only no money to spare, but is calling for the repayment of the large loans which were made to this country months ago. Consequently there is a well grounded fear whether there will be enough money to continue business on its present basis, without considering any increase in its volume. This, however, will be more clearly seen in the course of the next two or three months.

Pig Iron.—The Iron trade has reached an interesting, if not a somewhat critical, period. The demand for Pig Iron has reached a point which indicates considerable indifference on both sides. Sellers need not feel very anxious, and buyers are gradually reaching a condition of apathy, which will no doubt continue until something occurs to break the monotony. It is significant, however, that the remark that has been so common is no longer heard, that "Pig Iron looks like going higher," but it has been changed to, "Prices cannot go much lower this year," which denotes a most important change of sentiment, and one which is likely to be as good a guess as any other guess would be. The tendency toward a decline could be considerably modified by the suspension of imports. These have been of great value to the trade during the past six months by keeping prices within moderate limits, and in the same degree their withdrawal may prevent a decline, such as could hardly be avoided, if the oversupply was in American Iron. The average imports have been over 40,000 tons per month during 1907, but from this time forward it is expected that they will gradually fall off. The volume of business during the past week has been unusually light. Gray Forge, which is in good demand, has been pretty well cleaned up at \$22.50 to \$22.75, delivered, and more is wanted, but the supply is limited and prices are correspondingly firm. Foundry Irons are not quotably lower, but there are free sellers at last week's prices, and premiums for spot deliveries are gradually fading away. There are several inquiries for deliveries covering October to April, and some business has been done for the period named, but the inquiries are probably to feel the market rather than to place immediate orders. Basic Iron is dull, but prices are steady at last week's figures. Sales have been only a few thousand tons at \$23 last quarter, with no great disposition to increase commitments for deferred deliveries. Low Phosphorus Iron is so well sold up that it is a little uncertain what a buyer might have to pay. It would cost \$28 on dock to import, so that \$27 to \$27.50, f.o.b. local furnaces, looks low enough. The general list for deliveries in buyers' yards, eastern Pennsylvania or adjoining district, would be quoted about as follows:

Third Quarter 1907.

No. 2 X Foundry.....	\$24.50 to \$25.00
Gray Forge.....	22.50 to 22.75
Basic.....	23.75 to 24.25
Low Phosphorus.....	27.75 to 28.25
Middlesbrough, No. 3.....	22.00 to 22.50
Scotch Iron.....	24.25 to 24.75

Fourth Quarter 1907.

No. 2 X Foundry.....	\$23.25 to \$23.75
Basic.....	23.00 to 23.25
Gray Forge.....	22.00 to 22.50
Low Phosphorus.....	27.75 to 28.00

Ferroalloys.—There is not much doing in this article, and prices are easy to about \$1 lower. For shipment during the last half \$61 to \$62 could be done, and for prompt shipment \$64 to \$65. The market is unsettled and the feeling decidedly easy.

Steel.—A very good business has been done the past week, and mills are full of work until toward fall. Prices are unchanged at \$32.50 to \$33 for nearby deliveries for Ordinary Rolling Billets and \$36 to \$38 for Forging Steel.

Plates.—There is no change of any importance in the Plate situation. There is a good demand for small and medium sized lots, and the incoming of orders is about equal to deliveries, which keep up very well. Specifications are coming in nicely, and the outlook is fairly satisfactory. Prices are unchanged as follows:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel.....	1.93½	1.98½
Flange or Boiler Steel.....	2.03½	2.08½
Marine.....	2.23½	2.28½
Locomotive Firebox Steel.....	2.43½	2.48½

The above are base prices for ¼-in. and heavier. The following extras apply:

	Extra per 100 lb.
3-16-in. thick.....	\$0.10
Nos. 7 and 8, B. W. G.....	.15
No. 9, B. W. G.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00

Structural Material.—Business is not active by any means, and competition for such as there is is beginning to be very close. There is no large work offering in this territory, but the run of small orders is quite considerable in the aggregate. Prospects cannot be said to be specially encouraging, although there is a great deal of important work to come out during the later months of the year, such as the elevating of the tracks of both the Pennsylvania and Reading railroads. This, however, is some distance in the future, and in the meantime quotations are unchanged at 1.83½c. to 2c. for Beams, Channels and Angles, according to specification.

Bars.—The demand for Bar Iron is not very urgent, neither is the outlook as promising as it should be at this season. Prices are down to absolute cost, so that even with a full run of orders there is little left for the manufacturers. Steel Bars are scarce for prompt delivery, and are quoted on about the same basis as for Refined Iron, namely, 1.83½c. as a minimum for carload lots and upward.

Sheets.—The Sheet trade is holding its own, but is not quite as active as it was some weeks ago, although the mills get enough business to enable them to run full time. Prices remain the same as last week, namely, for mill shipments, subject to the usual additions for small lots: Nos. 18 to 20, 2.80c.; Nos. 22 to 24, 2.90c.; Nos. 25 to 26, 3c.; No. 27, 3.10c., and No. 28, 3.20c.

Old Material.—The situation as regards Old Material is beginning to have two sides to it. The scarcity of Steel Scrap is not so apparent as it was some time ago, and while it is not going begging, neither are consumers begging for it. Some claim to have made recent sales as high as \$19.50 and \$20, but others admit that \$19 to \$19.50 would be a fair price to-day, with a possibility that less than \$19 might be done under favorable conditions as regards deliveries, &c. Other descriptions are quoted at nominally unchanged prices, but there are indications that outside figures have been reached for the present. For deliveries in consumers' yards, eastern Pennsylvania and adjoining districts, bids and offers are about as follows:

Steel Crops and Rails.....	\$20.00 to \$20.50
No. 1 Steel Scrap.....	18.75 to 19.50
Low Phosphorus.....	24.50 to 25.00
Old Steel Axles.....	22.00 to 22.50
Old Iron Axles.....	31.50 to 32.00
Old Iron Rails.....	27.50 to 28.00
Old Car Wheels.....	25.50 to 26.00
Choice No. 1 R. R. Wrought.....	21.00 to 21.50
No. 1 Yard Scrap.....	19.00 to 19.50
Long and Short.....	19.00 to 19.50
Machinery Scrap.....	21.00 to 21.50
Wrought Iron Pipe.....	17.00 to 17.50
No. 1 Forge Fire Scrap.....	16.75 to 17.25
No. 2 Light.....	11.50 to 12.00
Wrought Turnings.....	17.00 to 17.50
Heavy Machinery and Axle Turnings.....	17.25 to 17.75
Stove Plate.....	17.75 to 18.25
Cast Borings.....	16.25 to 16.50
Grate Bars.....	16.75 to 17.25

Birmingham.

BIRMINGHAM, ALA., June 16, 1907.

Pig Iron.—The market continues decidedly quiet. The sales last week were probably the smallest of any week in the past year. As far as strength is concerned, however, the producers appear to be holding as firmly as ever and manifest no desire whatever to book additional tonnage at this time. It is pretty generally admitted that a few of the furnaces in the district have reserved a somewhat larger tonnage to sell, as spot Iron during the last half of the year than has heretofore been customary, but it is pointed out that several of the largest consumers of Southern Iron have not fully covered for their requirements for this delivery, and it is asserted that the tonnage needed will exceed that reserved. Producers here deny that they have received any orders to withhold shipments and are not apprehensive of any decline in prices for third and last quarter delivery. It is very probable, however, that a slight concession in the price of spot Iron will have to be made shortly, as there is entirely too much difference between the price it is commanding now and the price asked for third quarter. Quotations are now about as follows: Spot shipment, \$22.50 to \$23; third quarter, \$21.50 to \$22; fourth quarter, \$20 to \$21; first quarter, 1908, \$18.50. Inquiry for next year

has been very light, and only two or three orders for small tonnage are reported to have been booked.

Cast Iron Pipe.—A few small sales have been made this week, but as a whole the market is reported rather quiet. The amount of business in sight, while not very large, is sufficient with what the foundries now have on their books to guarantee them a good business during the balance of this year. The city of Atlanta, Ga., which rejected all the bids submitted at the public letting held recently, is now asking for prices on about 1000 tons of Water Pipe. Contract for this, it is understood, will be let privately. Manufacturers state no concessions are being made, and prices on Water Pipe are approximately as follows per net ton: 4 to 6 in., \$36; 8 to 12 in., \$34; over 12 in., average \$31, with Gas Pipe \$1 extra per ton.

The season for Cast Iron Soil Pipe has opened with a rush and all the foundries here have their order books well filled. On account of the heavy demand during the mild winter just passed stocks on manufacturers' yards are smaller than usual at this season of the year.

Old Material.—In sympathy with conditions prevailing in other lines, the Scrap market has been slightly less active this week than during the two or three preceding. The movement, however, seems to be satisfactory to the dealers, and prices heretofore existing are well maintained. Quotations are approximately as follows, per gross ton, f.o.b. cars here:

Old Iron Rails.....	\$22.00 to \$22.50
Old Iron Axles.....	18.50 to 19.00
Old Steel Axles.....	17.50 to 18.00
Old Car Wheels.....	20.50 to 21.00
No. 1 Railroad Wrought.....	18.50 to 19.00
No. 2 Railroad Wrought.....	13.00 to 13.50
No. 1 Country Wrought.....	13.00 to 13.50
No. 2 Country Wrought.....	12.00 to 12.50
Wrought Pipe and Flues.....	13.50 to 14.00
Railroad Malleable.....	14.00 to 14.50
No. 1 Steel.....	15.00 to 15.50
No. 1 Machinery Cast.....	16.50 to 17.00
Stove Plate and Light Cast.....	13.00 to 13.50
Cast Borings.....	8.50 to 9.00

Pittsburgh.

PARK BUILDING, June 19, 1907.—(By Telegraph.)

Pig Iron.—There is almost an utter absence of buying, mainly for two reasons—consumers are covered and the furnaces are sold up. Further, July 1 is approaching, when a number of plants will close down for inventory and repairs, and the owners do not want to buy or take in any Iron during June that they can possibly avoid. A local concern that was shipping Iron to the Milliken plant, Staten Island, N. Y., has resold some of the Iron that was en route, while a local dealer has sold some Bessemer Iron that was more or less pressing on the market. We note a sale of 2500 tons of Bessemer for June delivery at \$23.50, Valley furnace, and also note a deal involving 15,000 tons of Bessemer furnished to a local Steel concern, which puts it into Steel, sending this Steel to another mill to be rolled into Plates. We quote Bessemer and Basic Iron for prompt delivery at \$23.25 to \$23.50, Valley furnace, or \$24.15 to \$24.40, Pittsburgh. We quote Northern No. 2 Foundry in small lots for prompt delivery at \$25 to \$26; for third quarter, \$23 to \$24, and for last half at \$22.50 to \$23, Valley furnace. We quote Northern Forge Iron at \$22.25, Valley furnace, or \$23.15, Pittsburgh. There is little inquiry for either Forge or Foundry Iron, and only small lots have been sold.

Steel.—The mills are making much better deliveries on Billets and Sheet and Tin Bars than for some months, and there is now little complaint from consumers over delayed shipments. We quote 4 x 4 in. Bessemer Billets at \$29.50 and Open Hearth Billets at \$31 to \$31.50, Pittsburgh. We quote Axle Billets for third quarter delivery at \$34, Pittsburgh. Sheet and Tin Bars in random lengths are held at \$30.50 to \$31, makers' mills.

(By Mail.)

The past week has been one of the quietest the Iron trade has seen for several months, and this has given the daily press a chance to declare that the bottom has fallen out of the Iron business and that nothing but disaster is ahead. One has only to visit the offices of the different large Steel concerns to find out how absolutely unfounded these pessimistic reports are, the actual situation being practically the reverse of what these reports would indicate. It is true that there is a dearth of inquiry in the Pig Iron market, but this is explained by the fact that the furnaces are sold up, consumers are covered, and there is practically no Iron to sell for delivery over the next three months at least. In the almost entire absence of buying, prices on Pig Iron are firm, and there is no sign of a break in the market. The supply of Steel is undoubtedly better, there being few complaints now from customers over delayed shipments. The tonnage of orders for Finished Iron and Steel placed so far

in June is not as heavy, on the whole, as in May, but this is the season of the year when new buying usually falls off, and it is not specially significant. On Structural Material, Plates, Steel Bars, Sheets and Pipe the mills are filled up for some months and consumers are specifying liberally against contracts. It would be unreasonable to expect the Steel trade to maintain indefinitely the extraordinary activity of the past two years or more, and a slight recession in volume of new business is not, therefore, unexpected. There is nothing in the situation just now that would indicate an early slump in the Steel business, but, on the contrary, present conditions for the balance of this year seem pretty well assured.

Ferromanganese.—There is some inquiry in the market for July and August shipment, and we note one sale of about 75 tons for that delivery at a price equal to about \$64, Pittsburgh. For delivery over August and September \$63 to \$63.50, Pittsburgh, is being quoted.

Muck Bar.—Inquiries have quieted down, probably due to the fact that the mills of a number of consumers will close July 1 for needed repairs and inventory. We note a sale of about 500 tons of high grade Muck Bar made from all Pig Iron at \$37.50, and we quote the market at \$37.50 to \$38, Pittsburgh.

Skelp.—The demand for Skelp continues heavy, and one or two leading Pipe mills are having trouble in getting Skelp as fast as needed. For reasonably prompt delivery high prices have been paid, and we note a sale of a round lot of Sheared Steel Skelp on the basis of 2c., at maker's mill. For forward delivery we quote: Grooved Steel Skelp, 1.90c. to 1.95c.; Sheared Steel Skelp, 1.90c. to 2c.; Grooved Iron Skelp, 2.20c. to 2.25c., and Sheared Iron Skelp, 2.30c. to 2.35c., these prices being f.o.b. maker's mill.

Rods.—Inquiries are lighter, and the supply seems to be slightly better, due to the fact that the mills are making more prompt deliveries on Steel. We quote Bessemer and Open Hearth Rods at \$37, Pittsburgh.

Steel Rails.—Only a limited amount of new tonnage is being placed, the general situation being quiet. Some of the larger railroad systems are undoubtedly holding off placing contracts for Rails for next year's delivery until some definite understanding is reached between the railroads and the Rail mills over the question of broken Rails. Last week the Carnegie Steel Company took contracts for about 10,000 tons of Standard Sections and about 3000 tons of Light Rails. We quote Light Rails as follows: \$33 to \$34 for 20 to 45 lb.; \$34 to \$35 for 16-lb., and \$35 to \$36 for 12-lb., at mill. Angle Splice Bars are held at 1.65c., and Standard Section Rails at \$28, at mill.

Plates.—Some very large tonnage is in the market on Sheared Plates and other Shapes to be used in Ore boats, contracts for which will be placed in a short time, these boats to go into commission next year. The demand for Plates from the Steel car builders is said to be as heavy as ever, this industry alone using upward of 3000 tons per day at the present time. On Sheared Plates some of the mills cannot make deliveries inside of three or four months, but on Universal Plates some of the smaller mills can make deliveries in three or four weeks. We quote: Tank Plates, ¼-in. thick, 6¼ in. up to 100 in. wide, 1.70c. to 1.80c., base, at mills, Pittsburgh. Extras over this price are as follows:

	Extra per 100 lb.
Gauges lighter than ¼-in. to and including 3-16-in.	
Plates on thin edges.....	\$0.10
Gauges Nos. 7 and 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 in.....	.05
Plates over 110 to 115 in.....	.10
Plates over 115 to 120 in.....	.15
Plates over 120 to 125 in.....	.25
Plates over 125 to 130 in.....	.50
Plates over 130 in.....	1.00
All sketches (excepting straight taper Plates varying not more than 4 in. in width at ends, narrowest end being not less than 30 in.).....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
"A. B. M. A." and ordinary Firebox Steel Plates.....	.20
Still Bottom Steel.....	.30
Marine Steel.....	.40
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within 10 days from date thereof, discount of ¼ of 1 per cent. is allowable. Pacific Coast base, 1.60c., f.o.b. Pittsburgh, with all rail tariff rate of freight to destination added, no reduction for rectangular shapes 14 in. wide down to 6 in. of Tank, Ship or Bridge quality.

Structural Material.—The mills report that specifications continue to come in freely, but it is now believed that a good deal of large work will probably go over into next year. Much of this is from the railroads, which are having trouble to get money except at high rates of interest, and which will probably cause them to postpone a good deal of work that would be coming out now were the money market easier. The American Bridge Company has taken about 3000 tons of track elevation, and the Cambria Steel Company has taken about the same tonnage for a Western office building. We quote: Beams and Channels, up to 15 in.,

1.70c.; over 15-in., 1.80c.; Angles, 3 x 2 x ¼ in. thick up to 6 x 6 in., 1.70c.; 8 x 8 and 7 x 3½ in., 1.80c.; Zees, 3 in. and larger, 1.70c.; Tees, 3 in. and larger, 1.75c. Under the Steel Bar card Angles, Channels and Tees under 3 in. are 1.70c., base, for Bessemer and Open Hearth, subject to half extras on the Standard Steel Bar card.

Sheets.—We note a continued active demand for both Black and Galvanized Sheets, but it is not quite as heavy this month as it was in May. However, the Sheet mills are sold up on both Black and Galvanized for two or three months, and some cannot make prompt deliveries on Galvanized inside of four months. Last week the American Sheet & Tin Plate Company operated 100 per cent. of its Sheet capacity and is doing the same this week. There is some talk of an early advance in prices of Galvanized Sheets, but as yet nothing official has been given out. Customers who want prompt deliveries on either Black or Galvanized Sheets usually have to pay premiums of \$2 to \$3 a ton or more. For forward delivery we quote: Blue Annealed Sheets, No. 10 gauge and heavier, 1.85c.; Nos. 11 and 12, 1.90c.; Nos. 13 and 14, 1.95c.; Nos. 15 and 16, 2.05c.; Box Annealed, Nos. 17 to 21, 2.35c.; Nos. 22 to 24, 2.40c.; Nos. 25 and 26, 2.45c.; No. 27, 2.50c.; No. 28, 2.60c.; No. 29, 2.75c.; No. 30, 2.85c. We quote Galvanized Sheets as follows: Nos. 10 and 11, 2.65c.; Nos. 12 and 14, 2.75c.; Nos. 15 and 16, 2.85c.; Nos. 17 to 21, 3c.; Nos. 22 and 24, 3.15c.; Nos. 25 and 26, 3.35c.; No. 27, 3.55c.; No. 28, 3.75c.; No. 29, 4c., and No. 30, 4.25c. We quote No. 28 gauge Painted Roofing Sheets at \$1.85 per square, and Galvanized Roofing Sheets, No. 28 gauge, \$3.25 per square, for 2-in. corrugations. These prices are for carload lots, jobbers charging the usual advances.

Hoops and Bands.—Buying for fall delivery has started, and a large amount of new tonnage in Hoops and Bands is being entered, while buyers are specifying freely on contracts, and shipments by the mills are heavy. We quote: Steel Hoops, 2c., and Bands for all purposes at 1.60c., base, half extras, as per Standard Steel card. These prices are for carload lots, f.o.b. Pittsburgh, plus full tariff rail rate to point of delivery, an advance of \$2 a ton being charged for less than carloads.

Cotton Ties.—It is understood that on July 1 prices on Cotton Ties will be slightly advanced, but it is expected that practically all of the tonnage wanted for this year will be placed before that date. Up to this time more than 2,000,000 bundles of Cotton Ties have been placed with the mills at the agreed price of 95c. per bundle.

Tin Plate.—The mills are pretty well filled with orders through the third quarter, but up to this time only a comparatively small tonnage has been placed for delivery in the fourth quarter of this year. This is due to the uncertainty on the part of the canning interests as to how much they will need, owing to the lateness of the fruit crop, and the fact that it will be later than last year. It is not believed, however, that actual requirements of Bright Plate this year will fall much below last year. The American Sheet & Tin Plate Company is operating very close to 100 per cent. of its capacity, while the leading independent mills are running to their full extent. Deliveries of Tin Bars by the mills are more satisfactory than for some time, and there is little complaint now over tardy shipments of Steel. We quote for third and fourth quarter delivery as follows: \$3.90 for 100-lb. Cokes, f.o.b. Pittsburgh, for 14 x 20 100-lb. Cokes, terms 30 days, less 2 per cent. off for cash in 10 days, on which price a rebate of 5c. a box is allowed for carload and larger lots.

Bars.—In addition to the heavy tonnage of Steel Bars placed by the implement makers, the Steel car builders have also been heavy buyers, and an enormous tonnage of Bars has been booked by the leading mills this month. All of it has been taken at the full price of 1.60c., base, Pittsburgh, deliveries on some of the contracts running through to July of next year. While no settlement was reached on the wage scale for puddlers and finishers with the Western Bar Iron Association or with the Republic Iron & Steel Company, it is not believed that there will be serious trouble in effecting a settlement, and it is probable that another conference with these two interests will be held next week. Numerous Bar mills will close down July 1 for needed repairs and stock taking. All the leading Steel Bar mills are sold up for the next three or four months, and any mills that are in position to make prompt deliveries can obtain from \$3 to \$4 a ton premium over regular prices. A moderate amount of new tonnage is being placed in Iron Bars, on which the mills are able to make better deliveries than on Steel. We quote Refined Iron Bars at 1.70c. to 1.75c., Pittsburgh, and Steel Bars for forward delivery at 1.60c., base, half extras, f.o.b. Pittsburgh.

Spelter.—The market is firmer, and a larger amount of new business is being placed. We quote prime grades of Western Spelter at 6.40c., St. Louis, equal to 6.52½c., Pittsburgh.

Merchant Steel.—We note a continued active demand for Spring and Tire Steels, the mills having recently booked some heavy orders for extended deliveries. The implement

makers have also placed large orders for delivery over the next year, and shipments by the mills are unusually heavy. We are advised that the demand for Shafting is quite active and that official prices are being held. We quote: Smooth Finished Machinery Steel, 1.85c. to 2c., depending on quality; Flat Sleigh Shoe, 1.65c. to 1.75c.; Cutter Shoe, 2.15c. to 2.20c.; Toe Calk Steel, 2.10c. to 2.15c.; Railroad Spring Steel, 1.75c. to 1.80c.; Crucible Tool Steel, 6c. to 8c., for ordinary grades, and 10c. and upward for special grades. We quote Cold Rolled Shafting at 50 per cent. off in carloads, and 45 per cent. in less than carloads, delivered in base territory.

Railroad Spikes.—Some heavy contracts for Railroad Spikes for delivery in the last half of the year have been placed by leading railroads, and on the smaller sizes the mills are from two to three months behind, but can make more prompt shipments on the standard sizes. We continue to quote standard sizes at \$2.15 to \$2.20, but note that the lower price is named only by one or two mills and for desirable orders. We quote small sizes at \$2.40 to \$2.50 per 100 lb.

Merchant Pipe.—Among large contracts recently placed is one for about 200 miles of 4, 6 and 8 in. Iron Line Pipe. The general demand for Merchant Pipe continues enormously heavy, and one or two of the leading mills have orders entered running into the first part of next year. There is some difficulty in getting deliveries of Skelp, which is commanding high prices and is very scarce. Discounts on Steel Pipe are as follows:

	Merchant Pipe.	
	Jobbers, carloads.	Steel.
	Black.	Galv.
1/4 to 3/4 in.	.65	.49
3/4 in.	.67	.53
1/2 in.	.69	.57
3/4 to 6 in.	.73	.63
7 to 12 in.	.70	.55
Extra strong, plain ends:		
1/4 to 3/4 in.	.58	.46
3/4 to 1/2 in.	.65	.53
1/2 to 8 in.	.61	.49
Double extra strong, plain ends:		
1/2 to 8 in.	.54	.43

All above discounts are subject to 1 point on the base and 5 per cent. on the net.

Official discounts on Iron Pipe, which are shaded one-half point or more to the large trade, are as follows, f.o.b. Pittsburgh:

	Standard Genuine Iron Pipe.	
	Black.	Galv.
3/4 to 6 in.	.67	.57
1/2 in.	.62	.50
3/4 in.	.60	.42
1/2 and 3/4 in.	.58	.42
7 to 12 in.	.62	.47
Extra Heavy Iron Pipe, Plain Ends.		
1/4, 1/2 and 3/4 in.	.62	.40
1/2 to 4 in.	.59	.47
4 1/2 to 8 in.	.55	.42

Boiler Tubes.—Some large contracts for locomotive Tubes have been placed by leading railroads for delivery in the last half of the year, and we also note that the demand for Merchant Tubes is unusually heavy. Some mills advise us that for prompt deliveries they are able to obtain premiums of about \$2 a ton over official discounts for forward delivery, which are as follows:

	Boiler Tubes.	
	Iron.	Steel.
1 to 1 1/2 in.	.42	.47
1 1/2 to 2 1/4 in.	.42	.59
2 1/2 in.	.47	.61
2 3/4 to 5 in.	.52	.65
6 to 13 in.	.42	.59
2 1/2 in. and smaller, over 18 ft. long, 10 per cent. net extra.		
2 1/2 in. and larger, over 22 ft. long, 10 per cent. net extra.		

Iron and Steel Scrap.—Reports that the Carnegie Steel Company had bought in the past week 15,000 tons or more of Heavy Steel Scrap for Homestead and Munhall on the basis of about \$18.50, Pittsburgh, are officially denied. This company has taken about 2500 tons of Steel Scrap in the past week on the basis of about \$18, Pittsburgh. The general demand for Scrap is quiet and is mostly for small lots. Buying is likely to be light until the wage scales which expire on July 1 have been arranged and consumers know whether their mills are to be operated steadily or not. Dealers quote about as follows: Heavy Steel Scrap, \$18.25 to \$18.50, for Pittsburgh, Steubenville and Sharon delivery, prices depending on quality; No. 1 Railroad Wrought Scrap, \$18.75 to \$19, and No. 2, \$18.25 to \$18.50; Bundled Sheet Scrap, \$16.75; No. 1 Busheling Scrap, \$18 to \$18.25; No. 2 Busheling Scrap, \$15 to \$15.25; Old Steel Rails, short pieces, for Open Hearth purposes, \$18.50 to \$19; Old Steel Rails, re-rollers, \$20; Low Phosphorus Melting Stock, \$22.50 to \$23; Cast Iron Borings, \$14.25 to \$14.50; Stove Plate, \$16.50 to \$16.75; Old Car Wheels, \$26 to \$26.25; Steel Axles, \$21.75 to \$22; Grate Bars, \$16.25 to \$16.50; No. 1 Cast Scrap, \$21.50 to \$21.75; all above prices are per gross ton, f.o.b. Pittsburgh. We note sales of about 200 tons of Street Car Wheels at \$26.25 delivered, 200 tons of Cast Scrap at \$21.75 to \$21.90, Pittsburgh, and about 1000 tons of Re-rolling Rails on the basis of about \$20, Pittsburgh.

Coke.—Conditions in the Coke trade as regards prices have not shown any improvement, strictly Connellsville Furnace Coke for spot shipment having sold as low as \$1.90 a ton at oven, while other grades of Coke, loaded on cars and had to be moved, sold as low as \$1.75 a ton. The low prices ruling for spot Coke are having the effect of causing consumers to hold off making contracts for last half of the year, while on the other hand there is much anxiety on the part of producers that have contracts expiring on July 1 to have these renewed. At present there seems to be an overproduction of Coke, a great many works having started up this year without furnace connections, and these plants have to sell a large part of their Coke at the best prices they can get. We may state that contracts for strictly Connellsville 72-hr. Foundry Coke for last half of the year have been made at \$3.15 to \$3.25 a ton at oven, while other grades of Foundry Coke have been sold on contracts for last half of the year as low as \$2.85, at oven, to consumers. Some producers of Furnace Coke are quoting \$2.65 on contracts for last half of the year, but it is possible that lower prices will have to be made before consumers will agree to make contracts. There is a full supply of cars, and with the enormous output an early improvement in prices of Coke does not seem likely. The production in the Upper and Lower Connellsville regions last week amounted to 417,000 tons.

Cleveland.

CLEVELAND, OHIO, June 18, 1907.

Iron Ore.—The movement of Ore has been very heavy the past week, and it is safe to predict that the June shipments will reach 6,000,000 tons, and break all previous records. The situation could hardly be more satisfactory to the shippers and vesselmen than it is at present. Most of the shippers have a fair supply of boats, but there is no surplus tonnage on the market, so that few are seeking wild cargoes. Some vesselmen are still a little behind on contracts, but they are getting pretty well caught up. Boats are now getting good dispatch at both ends of the lakes. The car shortage, which caused some delay earlier in the season, has about disappeared, so that there is little delay from this cause in unloading boats at Lake Erie ports. Considerable Ore is now being taken from the stock piles at the upper lake docks. The Ore market is quiet and firm, there being an occasional inquiry for Ore in small lots. One sale of 6000 tons of non-Bessemer Ore is noted the past week. It is reported from Duluth that the Duluth & Iron Range Railroad will build a new Ore dock at Two Harbors this summer and fall, which will cost not less than \$300,000. The dock will contain 142 pockets, and will be 940 ft. long. The same company will make extensive improvements all along its line this summer, and will build switching yards at Two Harbors to facilitate the handling of freight cars. Ore prices are unchanged, being as follows at Lake Erie docks, per gross ton: Old Range Bessemer, \$5; Mesaba Bessemer, \$4.75; Old Range non-Bessemer, \$4.25; Mesaba non-Bessemer, \$4; Siliceous Bessemer, \$2.75; Siliceous non-Bessemer, \$2.35 to \$2.60.

Pig Iron.—The situation in the Pig Iron market has been rather quiet. About the only activity is in Foundry grades for the first quarter and first half of 1908 delivery. Prices remain firm. Foundries are covering quite freely in this territory for their requirements for the first half of next year, and a number of sales of No. 2 Northern Foundry are reported at \$22 at furnace for the first quarter and first half of 1908. That seems to be the established price at present, and furnaces are not disposed to sell at a lower figure. The sales have been in lots ranging from 200 to 1000 tons. The foundries seem to be pretty well covered for the balance of this year. There is no inquiry for Foundry Iron for the third quarter, and only an occasional sale for prompt shipment and for the last quarter. A few sales for spot delivery are noted at \$25 and \$26 at furnace for No. 2 Foundry, and sales of the same grade have been made for the last quarter delivery at \$23.50 and a little less, at furnace. Some furnaces are holding off and have as yet made no sales for next year's delivery. Foreign Iron is weaker. One sale of a small lot is noted at \$25, delivered in the Valley, for No. 3 Middlesbrough, which is \$1 a ton lower than the last previous sales were made for in this territory. There is but little inquiry for Southern Iron. A few sales have been made during the week at \$18.50, Birmingham, for No. 2 Southern, for first quarter and first half of 1908 delivery. The Basic Iron situation is firm, but no sales are reported. There is a strong demand for Malleable Iron on contracts, and furnaces receive frequent requests for prompt shipment. Quotations for the last half of 1907, f.o.b. Cleveland, are as follows:

Bessemer	.....	\$23.90
Northern Foundry, No. 1	.....	\$24.00 to 24.50
Northern Foundry, No. 2	.....	23.50 to 24.00
Northern Foundry, No. 3	.....	23.00 to 23.50
Southern Foundry, No. 2	.....	24.85 to 25.35
Gray Forge	.....	22.50 to 23.00

Coke.—The Foundry Coke market is very active, and

prices are a little firmer. Considerable tonnage has been sold during the week for last half delivery, at \$3.15 to \$3.25, at oven, and some sales for the last half are reported at as high as \$3.50. Some of the foundrymen are covering for their requirements until July 1, 1908, at the same price as for the last half. Furnace Coke is very quiet, with no inquiries in this market. Furnaces in this district are apparently pretty well covered for the entire year.

Finished Iron and Steel.—The general situation continues very satisfactory, and a fair amount of new business has been placed on the books during the week, although the buying was not nearly as heavy as in some of the recent weeks when the manufacturers were buying to cover their Steel Bar requirements for the last half of the year. While the situation has eased up a little, the mills, especially the larger ones, report that no improvement in deliveries is as yet apparent. Iron Bars are in good demand and a little firmer. Local mills that were selling Iron Bars at 1.70c., Cleveland, have restored the old price and are asking 1.70c., Pittsburgh. One Pittsburgh mill, however, is offering Bars in the local market on the basis of 1.65c., Pittsburgh, or 1.75c., Cleveland. Most of the Bar mills are filled up with business for two or three months, and are holding the price firm at 1.70c., Pittsburgh. Steel Bars are quoted at 1.70c., Cleveland, for future delivery. The demand for Plates, both for future shipment and for quick delivery, is quite heavy. One western Pennsylvania mill, which recently increased its capacity for making Universal Plates, promises delivery in two or three weeks, and on Sheared Plates in from six to eight weeks. One mill reports a good demand for premium Plates at 1.90c. to 2c., Pittsburgh, and other mills are getting \$3 to \$4 premium for prompt shipment. During the past two weeks contracts have been awarded to two ship-building companies for the building of four lake freighters for the spring of 1908 delivery, and these boats will require in the neighborhood of 15,000 tons of Plates. The placing of orders for boats this early in the season indicates confidence in the continuance of the present business prosperity of the country. Billets continue in fair demand and are firm. Forging Billets are selling at \$34 at mill for future delivery, and from \$2 to \$4 higher for prompt shipment. The demand for Sheets continues heavy, and there is not much improvement in deliveries except in some sizes of Blue Annealed Sheets, deliveries of which some mills can make in from 8 to 10 weeks. A sale of 300 tons of Traction Rails was made, and there are inquiries out for about 8000 tons of Rails for various traction projects. These inquiries, it is expected, will result in the placing of some orders in the next few weeks. The demand for Structural Material continues fair. An order was placed with the American Bridge Company for several hundred tons, a portion of 2600 tons that will be required for the new Cuyahoga County Court House, Cleveland. Jobbers report a heavy demand for all kinds of Finished Material out of stock. Steel Bars are selling out of stock at 1.95c., and Iron Bars at 2c. Warehouse prices on Sheets are as follows: Blue Annealed, No. 10, 2.30c.; No. 28 One Pass Cold Rolled, 3.05c.; No. 28 Galvanized, 4.05c. The stock price on Boiler Tubes, 2½ to 5 in., is 64 per cent. discount, and on Black Merchant Iron Pipe, base sizes, 67 per cent. discount.

Old Material.—There is still a strong demand for Cast Scrap, and the supply is rather scarce. The price remains firm, being sustained by the high price of Pig Iron. In other respects, the market is quiet. As many of the mills will close for repairs on July 1 they have ceased to buy Scrap for immediate delivery. Prices of all Scrap, however, continue strong. Dealers are looking for a more active market next month. No lists of Old Material are offered by the railroads this week. Dealers' prices to the trade per gross ton, f.o.b. Cleveland, are as follows:

Old Steel Rails.....	\$16.75 to \$17.00
Old Iron Rails.....	24.00 to 25.00
Steel Car Axles.....	22.50 to 23.00
Old Car Wheels.....	23.00 to 23.50
Relaying Rails, 50 lb. and over.....	29.00 to 31.00
Relaying Rails, under 50 lb.....	31.00 to 32.50
Heavy Melting Steel.....	16.50 to 17.50
Railroad Malleable.....	18.75 to 19.25
Agricultural Malleable.....	15.50 to 16.50
Light Bundled Sheet Scrap.....	15.50 to 16.50
Bundled Tin Scrap.....	14.00 to 16.00

The following quotations are per net ton, f.o.b. Cleveland:

Iron Car Axles.....	\$26.00 to \$27.00
Cast Borings.....	10.50 to 11.00
Iron and Steel Turnings and Drillings.....	12.50 to 13.00
No. 1 Bushing.....	14.50 to 15.00
No. 1 Railroad Wrought.....	16.50 to 17.00
No. 1 Cast.....	19.00 to 20.00
Stove Plate.....	15.00 to 15.50

Nicholson & Co., Pittsburgh Chain Works, Rankin, Pa., are building an addition to their plant consisting of a steel building, 42 x 48 ft., in which will be installed more forges for making chain and equipment for making chain forgings. This concern started in business manufacturing chain in 1900 with only two forges, and at present is operating 26 forges, and this number is to be further increased.

Cincinnati.

FIFTH AND MAIN STS., June 19, 1907.—(By Telegraph.)

Pig Iron.—Perhaps the most prominent feature of the situation that is claiming the attention of the trade at the present time is the fact that considerable resale Iron is said to have been thrown on the market, presumably by consumers who have been more fully covered than they imagined and who are now ready and willing to take the chances for future requirements at a less price than secured before. Aside from this, the market is quiet. The appearance of this resale Iron has apparently had no special effect upon general conditions, excepting, perhaps, to make the demand for spot Iron less active, and it shows a decline of about 50c. per ton; that is to say, Iron in transit or on track is quotable from \$21 to \$21.50 for No. 2, Birmingham. The demand for the remainder of the year, and, in fact, for next year's delivery, is light, with ruling quotations from \$20 to \$20.50, same basis. There was a sale of several hundred tons of Gray Forge and No. 4 Foundry during the week, aside from which the demand for the lower grades is quiet. There is an inquiry from Pittsburgh territory for 500 tons of Mottled for immediate shipment, which, perhaps, is the largest inquiry for this grade. We note sales of 1000 tons of Malleable Bessemer to an Indiana concern, delivery covering September to December, inclusive, and 2500 tons of Northern brands to a melter in northern Ohio, for third quarter delivery, both sales going at ruling quotations. One of the large pump companies is in the market for about 3500 tons for third quarter delivery, 400 tons of which is said to be for local consumption. Freight rates from the Hanging Rock District to Cincinnati are \$1.15 and from Birmingham \$3.25. We quote for June delivery, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$24.25 to \$24.75
Southern Coke, No. 2.....	23.75 to 24.25
Southern Coke, No. 3.....	23.25 to 23.75
Southern Coke, No. 4.....	22.25 to 22.75
Southern Coke, No. 1 Soft.....	24.25 to 24.75
Southern Coke, No. 2 Soft.....	23.75 to 24.25
Southern Coke, Gray Forge.....	21.25 to 21.75
Southern Coke, Mottled.....	20.25 to 20.75
Ohio Silvery, 8 per cent. Silicon.....	30.15 to 30.65
Lake Superior Coke, No. 1.....	24.15 to 24.65
Lake Superior Coke, No. 2.....	23.65 to 24.15
Lake Superior Coke, No. 3.....	23.15 to 23.65

Car Wheel Irons.

Standard Southern Car Wheel.....	\$29.00 to \$29.50
Lake Superior Car Wheel.....	27.50 to 28.00

Coke.—Quite a heavy contract business has been the rule of the week, and prices appear to be fairly strong and well maintained. We quote the best brands of Connellsville and Virginia Foundry, from \$3 to \$3.25, f.o.b. ovens.

Finished Iron and Steel.—Aside from the general good trade that is keeping the mills crowded, there is no special feature of interest. The situation is strong and the market is active. We quote, f.o.b. Cincinnati, as follows: Iron Bars, carload lots, 1.93c., with half extras; smaller lots from store, 2c., with full extras. Steel Bars, carload lots, 1.73c., half extras; smaller lots from store, 1.95c., with full extras. Base Angles, carload lots, 1.83c. Beams and Channels, carload lots, 1.83c., base. Plates, ¼-in. and heavier, carload lots, 1.83c., base, and smaller lots from store, 2.25c. Sheets, No. 16, carload lots, 2.05c., and smaller lots from store, 2.60c.; No. 14, carload lots, 1.95c., and smaller lots from store, 2.50c. Steel Tire, 1 x ¼ in. or heavier, 1.93c. in carload lots.

Old Material.—The demand for Scrap is well maintained, and considerable material has changed hands during the week. Prices so far as obtainable are unchanged. We quote dealers' prices, f.o.b. Cincinnati, about as follows:

No. 1 R. R. Wrought, net ton.....	\$16.50 to \$17.00
Cast Borings, net ton.....	9.00 to 9.50
Steel Turnings, net ton.....	12.00 to 12.50
No. 1 Cast Scrap, net ton.....	17.50 to 18.00
Old Iron Axles, net ton.....	25.50 to 26.00
Old Iron Rails, gross ton.....	24.00 to 25.00
Old Steel Rails, long, gross ton.....	17.50 to 18.00
Relaying Rails, 56 lb. and up, gross ton.....	28.25 to 29.25
Old Car Wheel, gross ton.....	24.00 to 24.50
Low Phosphorus Scrap, gross ton.....	19.50 to 20.00

The Domhoff & Joyce Company, Cincinnati, will open offices in Chicago in the Railway Exchange Building July 1. E. T. Connors, who has been connected with the Portsmouth Steel Company, Portsmouth, Ohio, will represent the Domhoff & Joyce Company as general sales agent. This company has secured the agency for the Stonega Coal & Coke Company's output for this territory exclusively, and will also represent at Chicago most of the agencies for Pig Iron as held at Cincinnati.

The Court of Appeals of the State of New York, on June 14, unanimously affirmed the decision of the lower court in dismissing the suit against the Williams Printing Company, New York, for the employment of women in its bindery after 10 o'clock on the night of January 31, 1906, in violation of the State law prescribing hours of labor for women.

New York.

NEW YORK, June 19, 1907.

Pig Iron.—The Milliken failure has raised the question whether there would be any special pressure to dispose of the tonnage of Basic Pig Iron released by it, for delivery to the end of the year. So far as the immediate future is concerned this is not apparent, since the pressure for deliveries upon the furnaces is as insistent as ever. There are a number of important inquiries in the market for Foundry Iron, both for early and for forward delivery, which the buyers hope to place at a considerable concession. On the other hand, consumers report that they are being offered Iron at lower prices. We quote spot Northern Iron, \$25 to \$25.50 for No. 1 Foundry and \$24.50 to \$24.75 for No. 2 Foundry. For the third quarter we quote \$24.50 to \$25 for No. 1 Foundry, \$23.50 to \$24.25 for No. 2 Foundry, and \$22.75 to \$23 for No. 2 Plain. No. 2 Southern Foundry is quoted \$26 to \$26.50 for spot Iron and \$25.25 to \$25.75 for the third quarter.

Steel Rails.—The principal new contract of the week is 10,000 tons for the Kansas City Southern, delivery to be made in 1908. There is a disposition on the part of some railroads to put off purchases for next year until the changes in specification, now under consideration, become more clearly defined. The mills have gone far enough in their study of the subject to find that they will need to ask \$5 a ton more for Rails made after the new specification some of the roads propose, notably the Pennsylvania Railroad. Meantime much interest is taken in the discussion of new and heavier sections, giving most of the added metal in the base. It is estimated that the Rails already bought for 1908, leaving out the Pennsylvania requirements, which are not actually booked, amount to somewhat more than 800,000 tons.

Structural Material.—Evidences appear of a comparatively quiet summer, so far as new business is concerned. Yet all the fabricating companies are well supplied with work and the structural mills not only have good orders ahead, but are making satisfactory sales each week for delivery in the second half of the year. The American Bridge Company's shops turned out 53,000 tons of work in May and booked 40,000 tons in new contracts, nearly all of which will come into the shops at once, while on 40,000 tons of work previously taken specifications reached the shops in May. Conditions are therefore considered favorable thus far and curtailment of the present rate of shop operation does not seem probable before late in the year, if then. In the past week the American Steel & Wire Company's new construction at Cleveland added 2100 tons to the American Steel & Wire Company's books. The American Sheet & Tin Plate Company also bought 600 tons for a new plant in western Pennsylvania. Among railroad work is an additional contract of the Chicago, Milwaukee & St. Paul for its Pacific Coast extension, bringing the total of the three contracts it has recently placed up to 4300 tons. The American Bridge Company also took 800 tons for the Erie Railroad and 600 tons of Pennsylvania tunnel work in New York City. At San Francisco it was awarded the Mills Building contract, calling for 1200 tons. The Hocking Valley Railroad bridge order, 725 tons, went to the Mount Vernon Bridge Company in Ohio, and the Poughkeepsie Bridge Company got 300 tons for a bridge for the Central of New England. The Bradley Construction Company got the general contract for the three sections of New York subway extension work referred to last week, the total of its bids being about \$3,800,000. The Steel contracts are not yet let. We quote tidewater deliveries, mill shipments, as follows: Beams, Channels, Angles and Zees, 1.84½c.; Tees, 1.89½c.; Bulb Angles and Deck Beams, 1.99½c. On Beams 18 to 24 in. and Angles over 6 in. the extra is 0.10c. Sales are made out of stock of material cut to length at 2¼c. to 2½c.

Bars.—The demand for Bar Iron is less active, inquiries covering only small quantities. Buyers are probably waiting until the fall crop outlook assumes more definite shape. It would not be surprising if a dull period had now set in, which would continue until late in July or possibly the early part of August. Best Refined Bar Iron is quotable at 1.65c. to 1.70c., Pittsburgh, or 1.81c. to 1.86c., tidewater. Steel Bars are in somewhat better demand than Bar Iron, and are held at 1.60c., Pittsburgh, or 1.76c., tidewater, deliveries beginning three to four months hence, and 1.86c. or higher for early delivery.

Plates.—The limited local demand appears to be about evenly divided between Sheared and Universal Plates. The closing of a Steel plant in this vicinity brings the expectation of some considerable business in Universal Plates, which will be required by the auxiliary fabricating works. Several of the Eastern Steel plants have for some time been complaining of the narrow margin between cost of production and the selling price of the finished product, and as two have recently closed for this reason it would not be surprising if some others followed their example. Raw mate-

rials are now on a considerably higher level than the prices ruling on contracts for delivery during the first five months of the year. Quotations for tidewater delivery are as follows: Sheared Tank Plates, 1.86c. to 1.96c.; Flange Plates, 1.96c. to 2.06c.; Marine Plates, 2.26c. to 2.36c.; Fire Box Plates, 2.75c. to 3.50c., according to specifications.

Cast Iron Pipe.—The city of New York is continuing its policy of purchasing small quantities of Pipe from time to time, which promise to aggregate a considerable tonnage for the current year. It is now purchasing about 3500 tons through contractors. A water company at Mineola, L. I., will purchase 336 tons on Friday. The city of Passaic, N. J., will open bids on 3800 tons on June 28. Inquiries are usually small, and not in any large number. Quotations are well maintained, carload lots of 6-in. Pipe being held at \$37 upward per net ton, tidewater, with large sizes commanding about \$1 less.

Old Material.—As referred to last week, the railroad companies have continued to offer fairly large quantities of Old Material, so as to convert as much of it as possible into cash before their semiannual statements are made up, but these offerings have been absorbed remarkably well. Prices have withstood the increased supply, probably due to the fact that dealers had excellent contracts to be filled. The demand for Steel Scrap is still very good, notwithstanding the closing down of two Steel plants in this vicinity. All kinds of Foundry Scrap continue in good request, but Wrought Scrap is still somewhat neglected, although stocks are getting smaller. The usual slowing down of manufacturing consumers is looked for in July and August, and this may check the demand for the time, but dealers are not looking for any serious decline in prices in view of the fact that while some consumers have dropped out of the market, others are steadily increasing their requirements and possibly more than make up for such occurrences. Re-rolling Steel Rails are getting scarce and indications point to higher prices for them. Quotations per gross ton, f.o.b. New York, are as follows:

Old Girder and T-Rails for Melting.....	\$16.25 to \$16.75
Heavy Melting Steel Scrap.....	16.25 to 16.75
Old Steel Rails, re-rolling lengths.....	18.75 to 19.50
Relaying Rails.....	27.50 to 28.00
Old Iron Rails.....	24.00 to 24.50
Standard Hammered Iron Car Axles.....	30.00 to 30.50
Old Steel Car Axles.....	20.50 to 21.00
No. 1 Railroad Wrought.....	19.50 to 20.00
Iron Track Scrap.....	17.50 to 18.00
No. 1 Yard Wrought, long.....	17.50 to 18.00
No. 1 Yard Wrought, short.....	17.00 to 17.50
Wrought Pipe.....	14.50 to 15.00
Light Iron.....	11.00 to 11.50
Cast Borings.....	12.50 to 13.00
Wrought Turnings.....	14.50 to 15.00
Old Car Wheels.....	23.00 to 23.50
No. 1 Heavy Cast, broken up.....	19.00 to 20.00
Stove Plate.....	16.50 to 17.00
Grate Bars.....	14.00 to 14.50
Malleable Cast.....	20.00 to 20.50

Metal Market.

NEW YORK, June 19, 1907.

Pig Tin.—Spot Tin is scarcer than ever, as the last week has but emphasized the scarcity which characterizes the market. In view of the heavy shipments from the Straits made during the first half of this month, there is reason to believe that in a short time the situation will be relieved somewhat. Consumers are doubtless waiting for this time before making further engagements, and are apparently fairly well supplied for the present, as the demand for spot Tin is not heavy. The forecast of relief is further strengthened by the London quotations, which showed a discount of about £7 per ton on futures at the close yesterday. This amounts to 1½c. per lb. here, and naturally consumers are buying only for their absolute needs. Merchants here figure that in two weeks this market will be more plentifully supplied. Little immediate relief is expected. The steamship Mesaba, due to-day, carries 350 tons, and the Maine is scheduled to arrive on the 27th, with about 550 tons. Scarcely any of this metal is being offered, however, indicating that it is going directly into consumption. On June 13 spot Tin was sold at 41.50c., and within a day it had advanced to 42c. This is the price asked for Mesaba Tin, which is due to arrive here to-day. A good business was done in early shipment Tin from London. Prices advanced still further on June 17, a little spot being sold at 42.75c., and the discount on futures increased a little, the quotation for delivery during the first week in July going down to 41.50c. Mesaba Tin sold on June 18 at 42.80c., and a small lot of spot sold at 43c., while another lot was held at 44c. At the close to-day 43¼c. was bid, and 43¾c. was asked. Closing London quotations showed £187 10s. for spot and £181 10s. for futures. Arrivals so far this month aggregate 1467 tons, while 3098 tons are calculated to be afloat. The shipments from the Straits for the first half of the month are extremely large, amounting to 3210 tons, as compared with 2181 tons at the same time last year. The supplies from the Straits during the next two and one-

half months are expected to be unusually large, as the Chinese are reported to have been free sellers.

Copper.—Consumers are waiting—waiting for the leading producing and selling interests to declare an "official" reduction in the price. The opinion that this cut is coming is held in all quarters of the trade. Just when it will come is the problem. Some say within two weeks, but this is only guesswork, based upon their estimate of when large consumers will again be forced into the market. In the meantime the "official" figures of the controlling interests hold—that is, nominally. Consumers who need the metal are experiencing no difficulty in finding it, and at prices considerably below those of the large producers, which are 25½c. to 26c. for Lake and 25¼c. for Electrolytic. These figures are no longer considered seriously, as the general impression prevails that they are named only pending the expiration of existing contracts with large home consumers. In the meantime other refineries, and even those of certain interests who operate in close harmony with the leading producers, are willing to sell without restraint at the following figures: Lake, 23¾c. to 24c.; Electrolytic, 22½c. to 22¾c.; Casting, 21½c. to 21¾c. Even at these quotations the business transacted from day to day is of so small a volume that in normal times it would be rated as of a retail nature. During the last six weeks it has been expected that the largest Lake company would effect one of its periodical large "sales." It has not taken place as yet, and in the opinion of the trade will not take place under present conditions unless consumers are guaranteed against a decline in price. The London market closed "easy" to-day at £99 for spot, £93 15s. for futures and £107 for Best Selected. Exports thus far this month amount to 9363 tons, which amount compares favorably with last month's figures, but is still very small when compared with former years.

Lead.—Business is very dull, and spot can now be had at 5.75c. to 5.85c., the inside figure being quoted on larger lots. St. Louis is dull at 5.65c., and the prices of the American Smelting & Refining Company remain unchanged. London cables announce an advance to £20 15s.

Spelter.—Prices are somewhat easier than last week, and the demand is rather light. Spot is quoted 6.40c. to 6.50c. here, and St. Louis telegraphs a nominal market at 6.35c. London quotes £24 10s.

Antimony.—Is very weak, and has continued tumbling toward its rational and normal level. The drop this week amounts to 2c. per lb., Hallett's being sold at 12c., duty paid. Cookson's is nominally 13c. to 14c., and other brands can be obtained from 11c. to 12c. The London quotation for Hallett's is £56, while other grades are quoted £55.

Ferroalloys.—There is no change of note, the demand being only fair. Prices are without change at \$110 for prompt shipments of 50 per cent. Ferrosilicon. Prompt shipments of Ferromanganese are obtainable at \$67 to \$69, while forward deliveries can be had at \$64 to \$66.

Tin Plates.—Conditions are unchanged in every respect. Prices continue firm at the old level, \$3.90 being quoted, f.o.b. Pittsburgh, and \$4.09, f.o.b. New York, for 100-lb. I. C. Coke Plates.

Old Metals.—The following dealers' selling prices are unchanged:

	Cents.
Copper, Heavy Cut and Crucible.....	21.50 to 21.75
Copper, Heavy and Wire.....	21.50 to 21.75
Copper, Light and Bottoms.....	19.50 to 20.00
Brass, Heavy.....	15.25 to 15.50
Brass, Light.....	12.25 to 12.50
Heavy Machine Composition.....	18.75 to 19.00
Clean Brass Turnings.....	13.25 to 13.75
Composition Turnings.....	16.50 to 16.75
Lead, Heavy.....	5.30 to 5.40
Tea Lead.....	5.00 to 5.10
Zinc Scrap.....	5.25

Iron and Industrial Stocks.

NEW YORK, June 19, 1907.

Almost midsummer dullness has prevailed on the New York Stock Exchange since our report of last week. Fluctuations have been narrow. The range has been as follows on leading stocks: United States Steel common 32 to 33½, preferred 97½ to 98; Car & Foundry common 40 to 41, preferred 97½ to 98½; Locomotive common 55½ to 57½; Colorado Fuel 28½ to 30; Pressed Steel common 32½ to 34, preferred 88 to 89; Railway Spring common 40 to 40½, preferred 89½ to 91; Republic common 24½ to 25½, preferred 81½ to 82; Sloss-Sheffield common 55½ to 56; Cast Iron Pipe common 32½ to 34, preferred 81; Can common 5¼ to 5½, preferred 54 to 54½. In some of the stocks which are usually more or less active no transactions were reported during the week, and in others only one sale was made. Steel Foundries preferred sold at 37 and Sloss-Sheffield preferred at 95. No quotations were made on Tennessee Coal. The market appears to be fairly firm, but those who influence speculative movements are evidently waiting for outside developments before committing themselves to any new plan of action. Last transactions up to

1.30 p.m. to-day are reported at the following prices: United States Steel common 32½, preferred 97½; Car & Foundry common 40½, preferred 98; Locomotive common 55, preferred 105; Steel Foundries common 7, preferred 37; Colorado Fuel 29½; Pressed Steel common 32½, preferred 88½; Railway Spring common 40; Republic common 25, preferred 81½; Sloss-Sheffield common 55½; Tennessee Coal 137½; Cast Iron Pipe common 24, preferred 81; Can common 5¼, preferred 54.

The Barney & Smith Car Company, Dayton, Ohio, in its report for the year ended March 31, 1907, shows net profits of \$602,030, after charging off \$38,203 for depreciation, an increase of \$62,766. The undivided profit account on April 1, 1907, shows a credit balance of \$325,582, after bond interest and dividends had been charged.

The Crucible Steel Company of America, Pittsburgh, reports its net earnings for the nine months ended May 31, 1907, after setting aside \$40,443.60 as a reserve for contingencies, at \$1,981,736.40. After the payment of three dividends, each of 1½ per cent., on the preferred stock, the surplus for the nine months is \$882,093.90. This statement of earnings is based on inventory values as of August 31, 1906, for all finished material. Raw and process material are valued at cost to the company as of May 31, 1907. During March, the first month of the quarter covered by this statement, the principal works of the company, at Pittsburgh, were shut down for 10 days on account of flood.

Dividends.—The Colt's Arm Company has declared a quarterly dividend of 1¼ per cent., payable July 1.

The Central Coal & Coke Company has declared the regular quarterly dividend of 1¼ per cent. on the preferred stock, and a quarterly dividend of 1½ per cent. on the common stock, both payable July 15.

The United Shoe Machinery Company has declared the regular quarterly dividend of 2 per cent. on the common stock and 1½ per cent. on the preferred stock, also a stock dividend of 25 per cent. on the common stock, payable July 15.

The American Iron & Steel Mfg. Company has declared the regular quarterly dividend of 1¼ per cent. on the common stock and 1¼ per cent. on the preferred stock, payable July 1.

The Westinghouse Machine Company has declared a quarterly dividend of 2½ per cent., payable July 10.

The Westinghouse Air Brake Company has declared a quarterly dividend of 2½ per cent. and an extra dividend of 2½ per cent., both payable July 10.

The Standard Screw Company has declared the regular semiannual dividend of 3 per cent. on the preferred stock and 3 per cent. on the common stock, both payable July 1. This is an increase of ½ per cent. over the last payment on the common stock, and places that issue on a 6 per cent. basis.

The Garvin Machine Company has declared the regular semiannual dividend of 3½ per cent. on the preferred stock, payable July 1.

The Crucible Steel Company of America has declared a quarterly dividend of 1½ per cent. on the preferred stock.

Manning, Maxwell & Moore, Incorporated, have declared a quarterly dividend of 1½ per cent., payable July 1.

The Youngstown Sheet & Tube Company has declared its regular quarterly dividend of 1½ per cent. and an extra dividend of 2 per cent., payable July 1.

The Standard Steel Car Company, Frick Building, Pittsburgh, has received an order from the New York, New Haven & Hartford Railroad for 2650 steel cars, deliveries on which will be started in a short time. The new plant of the Standard Company at Hammond, Ind., is approaching completion and will be put in partial operation early in July. This plant, when fully completed, will have a daily capacity for turning out about 50 steel cars, but will not make more than 10 or 15 cars at the start. The plates and other shapes used at this plant will come from the South Chicago mills of the Illinois Steel Company, but when the new plant of the Indiana Steel Company at Gary, Ind., is completed, they will be furnished by that plant.

Wheat exports from the United States in the 10 months ending with April aggregated about 66,000,000 bushels, against 32,000,000 bushels in the corresponding portion of the preceding fiscal year. For the full fiscal year ending with this month, the exports of wheat, including flour in terms of wheat, are expected to reach 140,000,000 bushels, against 98,000,000 bushels in the fiscal year 1906, and 44,000,000 bushels in 1905.

Fire was started June 16 in the new blast furnace of the Perry Iron Company, Erie, Pa.

The Interstate Commerce Commission to Act on Informal Complaints.

WASHINGTON, D. C., June 18, 1907.—The Interstate Commerce Commission is preparing to exercise a function based presumably on the increased powers granted it by the new freight rate law—namely, the promulgation of special orders of reparation, based on informal complaints which have not been made the subject of hearings and the usual quasi court proceedings before the commission. The matter is of much importance to shippers in all lines, as under the new policy it will frequently be practicable for manufacturers and dealers who are dissatisfied with rates levied upon their shipments, or who believe they have been subjected to discriminations of any kind, to bring them to the attention of the commission informally, and to secure a satisfactory adjustment without incurring the expense incident to a formal prosecution. In such cases shippers will not need the services of an attorney, and it is anticipated that many parties having such grievances will test this method of settlement before resorting to the more elaborate and costly routine proceedings provided by the Interstate Commerce law. It should be understood, however, that it is not the purpose of the commission to make orders on purely *ex parte* statements by shippers and in the face of protests by carriers, but the experience of the past nine months has demonstrated that carriers are frequently willing to make concessions and compromises rather than undertake to defend their action before the commission, and by the adoption of its new policy the commission hopes to be able to obviate much costly litigation and to relieve its overcrowded docket.

Rule as to Reparation Orders.

For the information of shippers and the officers and agents of carriers concerning the circumstances under which its power to authorize reparation on informal complaints will be exercised, the commission has prepared the following statement:

To assist in the settlement of certain claims of shippers against carriers, and as a practical means of disposing with promptness of informal complaints that might otherwise develop into formal complaints, and in connection with which the unreasonableness of the rate is admitted by the interested carrier or carriers, the commission on full information will authorize adjustment by special order if all of the facts and conditions warrant such action. It must not be understood that the commission assumes to or does set aside or disregard any of the terms of the law or of administrative rulings thereunder. The connections in which the commission has authority to modify the provisions of the law are specified in the act. The commission will not assume to modify it in any other connections or features.

It should be remembered, therefore, that the instances in which the commission will authorize refund or reparation on informal complaint and in an informal way will be confined to those cases in which the informal showing develops plainly a case in which the commission would award reparation on formal hearing and in which an adjustment agreeable to complainant and carrier or carriers and in conformity with the provisions of the law is reached.

Reparation involving refund of alleged overcharges in instances in which the lawful tariff rates have been applied will be authorized only when the carrier admits the unreasonableness of the rate charged and it is shown that within a reasonable time after the shipment moved it has incorporated in its own tariffs, or in tariffs in which it has concurred, the rate upon basis of which adjustment is sought, and has thus made that rate lawfully applicable via the route over which shipment in question moved.

The commission has repeatedly announced the view that the law does not permit the use of any rate except that contained in a lawful tariff that is applicable via the line, route and gateway over and through which the shipment moves. The lawful rate for through shipment is the through rate, wherever such through rate exists, even though some combination makes a lower rate and even though the practice in the past has been to give some shippers the benefit of such lower combination. The commission long since extended to carriers, in a general order, permission to reduce, on one day's notice, a through or joint commodity or class rate that is higher than the sum of the locals between the same points and to make it equal the sum of such locals. If, therefore, carriers have maintained through rates that are higher than the sum of the locals between the same points, it is because of their desire so to do, and not, as some agents of carriers have informed shippers, because the law or the commission forces them to do so.

If a carrier desires to give its patrons the benefit of a rate via another line or gateway which is lower than its own rate, it can do so lawfully by incorporating that rate in its own tariffs, and if it desires to give the benefit of that rate to all of

its patrons alike no good reason appears for not so incorporating it in its tariffs. It is true that the law forbids giving such lower rate to one and withholding it from another, but neither the law nor the commission stands in the way of adoption in lawful manner of the lower rate as available for all shippers.

It must not be expected that the commission's power to authorize adjustments will be exercised in such way as to create the very discriminations which the law aims to prevent. No doubt instances will occur in which seeming hardship will come to some. Much of such embarrassment will be avoided if agents of carriers and shippers take pains to be certain that correct rates are quoted and correct routing given.

Notice of Freight Tariff Changes.

In this connection the commission has made a ruling with regard to the conditions under which the carriers may modify their freight tariffs on less than the statutory 30 days' notice. Provision is made in the law that in emergencies, and under special conditions warranting the exercise of its authority, the commission may grant permission to make changes on shorter notice. This authority has been liberally exercised in connection with efforts to work out improvement in the general condition and character of tariffs, and with the expectation on the part of the commission that the number of requests of that nature would grow less. Contrary to that expectation, the number has largely increased, and many of the instances in which the exercise of the commission's authority is requested are clearly outside of the emergencies or special conditions which the lawmakers had in mind and to which the commission believes such permission should be confined.

The commission, therefore, announces that mere desire to meet the rate of a competing line will not be considered as sufficient cause for granting permission to make change on less than statutory notice. The rules adopted by the commission in this connection contemplated use of telegraphic requests if officials of carriers desired to use them, and for such telegraphic requests to be followed by formal, verified application. Action on such telegrams led to an increase in the number of instances in which, having received the permission desired, sending of formal and verified application was omitted, which forces the adoption of the rule that action will be taken only upon receipt of verified application.

W. L. C.

Labor Notes.

The molders and core makers employed by the Pennsylvania Engineering Works, New Castle, Pa., have gone out on strike, demanding a minimum rate of \$3.50 a day instead of \$3.30, the rate heretofore paid.

The June 1 list of applicants for membership in the National Metal Trades Association shows that the 1000 mark has been passed by this flourishing organization.

At Seattle, Wash., the proposal was made to the foundry proprietors by the Iron Molders' Union that the former allow their molders and coremakers to return to work at 8 hr. a day, with a reduction in wages of 40 cents a day. This is said to be the first instance in which the molders have made such an offer. The proprietors refused it, being unwilling to agree to the further continuance of shop control by the union.

The strike of the machinists at Cleveland, Ohio, has been broken and a large majority of the men have returned to work at their old wages and hours. The Cleveland branch of the National Metal Trades Association, of which many of the affected employers are members, took a firm stand against the demands of the machinists, and the officers of the association are greatly pleased with the almost complete victory that they have won. The strikers began to weaken a few days ago and early this week they returned to work in large numbers. In three or four large shops the men were granted the shorter hours, but no increase in wages, and in one large shop they were granted a 4 per cent. advance in wages, but were refused shorter hours. The demand for both more pay and shorter hours was not granted except in a few very small shops. About 40 large shops were affected by the strike. One member of the Cleveland branch of the National Metal Trades Association yielded to the machinists in granting the shorter hours, and as a result was asked to resign from the association.

Recent Customs Decisions.

Duty on Steel Strips.

In harmony with a recent decision of the United States Circuit Court, the Board of General Appraisers has sustained a claim made by the Washburn Wire Company against the imposition of an additional duty of 1 cent per pound on steel strips. It was maintained by the Government that the articles had been cold rolled and polished in such a manner that they became subject to a tax in addition to the regular rate of duty. The court, however, in the suit of the United States against the Crucible Steel Company of America, found in favor of the importer. The Government has acquiesced, and all importers' appeals raising the question of the extra duty now on the suspended files of the Board of Appraisers will be decided as soon as possible in order that the proper refunds may be made to the importers.

Commissions.

The United States Circuit Court of Appeals at New York has rendered a decision regarding the question of commissions which may prove the last of a protracted litigation. Judge Lacombe decides that so-called "commission" charges are properly included in the estimate of foreign market values on imported merchandise for dutiable purposes. The case before the appellate tribunal stood in the name of N. Erlanger, Blumgart & Co., New York, but a large number of other importers are directly affected by the court's ruling. It appears that upon entry of the merchandise in question certain amounts equaling items described in the invoices as commissions were deducted by the importers from the prices stated in the invoices, but were added by the Appraiser of the Port to make market value. The appraiser's action in this respect has since been affirmed by the Board of General Appraisers and by the Federal Circuit Court. In passing upon the importer's protests against the legality of the appraisements, the board excluded evidence offered to show that the commissions were in fact nondutiable, and affirmed the assessment made by the appraiser and the collector.

Duty on Composite Plates of Iron and Nickel.

The Board of United States General Appraisers has overruled a contention raised by Hermann Boker & Co., New York, regarding the rate of duty accruing on certain rolled sheets of metal composed of iron and nickel. The customs authorities assessed duty on the merchandise at 45 per cent. under the tariff provision for manufactures of metal, whereas the importers claimed lower rates under paragraph 131, or 132. In denying the claims of the importer, General Appraiser Fischer, in his decision for the Board, says, in part:

"It is obvious from the importer's description that the articles are without the scope of paragraph 131, for they are made not from sheets, as limited by paragraph 131, but from plates that are expressly excluded from classification thereunder. In other words, at no stage of the process of manufacture, nor at any period of their existence, were these articles 'common or black sheets of iron or steel' as defined by the provision of the tariff under which the importers claim they are dutiable. They are not as imported, and never were, iron or steel sheets. They are composite plates of iron and nickel rolled down, so that, even if the process of welding a sheet of nickel to a plate or sheet of iron were coating within the meaning of the paragraph 132, a claim that has been repeatedly denied by the board, and twice by the courts, the protests would still be untenable, for they would not then be coated or plated common or black sheets of iron. To fall within the provisions relied on by the importers, the coating or plating must be made on such sheets only, and if made on any other material those provisions do not apply."

The Columbia Bridge Company, Pittsburgh, Pa., announces that it has changed its name to Columbia Steel & Shafting Company. The company has plants at Rankin and Carnegie, Pa., and manufactures polished and turned steel shafting, forged shafts and cold drawn shapes.

The Milliken Steel Plant Shut Down.

An important step taken by the receivers of Milliken Brothers, Inc., in the past week is the shutting down of the open hearth steel plant and structural works on Staten Island, and the dismissal of the entire operating staff and working force. Orders were given for the putting of piping, machinery and all forms of equipment in shape to resist deterioration. It is understood that there is no present intention of resuming operations at the new plant, and the engineers, superintendents and others in charge have either accepted or are seeking positions elsewhere. The same is true of the mill workmen. Under present cost of raw material, in conjunction with other conditions due to the new status of the business, the receivers are not satisfied that the steel and structural plants can be operated profitably. Specifications for structural steel needed in carrying out fabricating contracts now on hand have been sent out, and the receivers will be buyers of a certain tonnage of shapes in the near future. They have also sent out a long list of steel ingots and slabs of various carbons and silicons, now in the yards at Staten Island, which are offered for sale.

So far as is now known the original fabricating plant on Staten Island will be kept in operation. The suggestion of a transfer to other hands of some of the company's contracts, of which the Singer Building and the Pennsylvania Terminal Station are the most noteworthy, has been considered, but no final decision has been made.

Canadian Steel Rail Orders.

TORONTO, June 17, 1907.—The Grand Trunk Railway Company has purchased 30,000 tons of rails from the Lackawanna Steel Company. The rails are to be delivered before the end of the year, a condition which precluded the acceptance of the order by Canadian makers, the works of the latter having all the business they can handle up to that time.

The Commissioners of the Transcontinental Railway are calling for tenders for 65,371 gross tons of 80-lb. steel rails. Particulars as to deliveries, &c., can be had on application to Hugh D. Sumsden, chief engineer, Ottawa. The tenders will be received up to noon, June 25. It is to be at the option of the commissioners whether open hearth or Bessemer rails shall be accepted. The necessary fastenings are to be separately tendered for. Up to the same date tenders will be received by the commissioners for the construction of five steel bridges.

Referring to a statement widely published as of Ottawa origin, to the effect that the Canadian Pacific Railway Company appeared to have a preference for the rails made at Sault Ste. Marie, an official of that company had this to say in an interview published in a Winnipeg paper:

There is no need for any secrecy in connection with the reason why the Canadian Pacific should prefer the Soo to the Sydney rail. The reason is obvious. Soo rails are made on the line of the railroad. Sydney rails are not made on the line and before being used must be carried about 500 miles on a foreign road.

The Steel-Coal Dispute at Sydney.

President Plummer of the Dominion Steel Company, is back from Europe, and in reference to the gossip as to the status of the controversy between his company and the Dominion Coal Company, is reported to have expressed himself as follows:

I can only say that there has been nothing accomplished with regard to a settlement. If, as the papers say, some offer for the purchase of the steel company, or of its stock, is to be made by the coal company, it certainly would receive most serious consideration, and if it appeared that the shareholders would make more than by operating the steel plant we should no doubt recommend them to accept. The matter is, however, one which the shareholders must decide for themselves. But the coal company is, in my opinion, very unlikely to pay a satisfactory price unless for the purpose of relieving itself from our claim against it. As to any settlement through readjustment of the coal contract, I have abandoned all idea of that.

Trouble as to the coal supply has undoubtedly caused us serious injury, and the reasonable hopes of our shareholders of a return from the investment must be postponed. It will take time and money to overcome the difficulty, but once overcome we shall be in a strong and independent position, and the ultimate effect, I confidently believe, will be beneficial.

The Machinery Trade.

NEW YORK, June 19, 1907.

Trade in machine tools seems to be gradually settling down to a more normal condition, though it continues exceedingly good for this time of the year, and with some houses is especially good. Usually upon the advent of the hot weather there is a perceptible falling off in business, which continues quiet during the summer, but this season, thus far, has been an exception in many respects. While there has been a decrease in the aggregate of orders booked within the past few weeks, the demand has been so great up to within a short time that the decrease, gradual as it has been, is more in the nature of a settling down to a normal basis, or what would be a good demand in an ordinary year. Machinery houses in this section report a good demand, mostly for small lots of tools from scattered sources. During the week the largest single railroad order reported for some time was placed with a prominent New York house by the New York, New Haven & Hartford Railroad. Little activity has been displayed by the other railroads, aside from the two Southern roads, which have placed orders for the machinery covered by the lists recently sent to the trade. Of the business placed by the Seaboard Air Line, the major portion was secured by the Niles-Bement-Pond Company, New York. The Vandyck-Churchill Company, New York, secured a good share of the orders placed by the Norfolk & Western Railroad.

The large amount of machinery freighted to Europe, which was held up by the longshoremen's strike, has begun to move, and exporters here are greatly relieved. It is declared that never before in the history of the trade has there been such a surplus of delayed orders on the docks and in the cars awaiting shipment. While no money will be lost by the exporters, as regards their contract with those to whom the machinery was shipped, they have been put to considerable expense in the way of wiring explanations, caring for the rapidly accumulating shipments and the like.

New York, New Haven & Hartford Railroad Places Large Machinery Order.

Probably the largest single order for machine tools placed in this district for some time was the one reported this week to have been received by a prominent Liberty street machine tool house from the New York, New Haven & Hartford Railroad. As but few of the merchants had the opportunity to submit bids on any part of the requirements, it was not generally known that the road intended to buy any large quantity of machinery at the present time, until it was made known that the order had been placed. The aggregate value of the tools is estimated at \$100,000, and in some quarters even higher than that amount. At any rate, the order is of large proportions. Within the past few days some of the merchants have visited the purchasing department of the road at New Haven in reference to the purchase of tools, but it is understood that the road's present requirements have been entirely covered in the large order just placed. The tools are said to be destined for various shops along the system, some for the recently erected shops at Readville, Mass., and a good portion for the new shops that are to be erected either at Hartford or New Haven, Conn. If the report, from reliable sources, that the recent purchase includes equipment for the latter new shops is correct, it will come as a surprise to many, as it was not thought that even plans had been prepared for these buildings.

The American Car & Foundry Company has purchased 170 acres of land at Gary, Ind., where a large new car plant will be erected as soon as the company's plans permit. At the office of the company, 25 Broad street, New York, it is stated that the new plant will be a model of its kind, and while the original plans now being prepared will call for equipment sufficient to turn out 100 cars a day, it is expected that other additions will follow shortly. The principal reason for the location of the plant is to have manufacturing facilities near an important source of supply and demand, and when the Indiana Steel Company's plant now in course of construction at Gary is completed, the company will be located advantageously, as far as getting material is concerned. It is stated that the plans are only in a preliminary stage, and it will be a few months before anything definite is done toward the actual erection of the plant and the purchasing of the needed equipment. By the first of next year, however, at the latest, the trade will derive considerable business from this source, as the requirements will necessarily be large.

The Alexander Hamill Iron Works, 426 Montgomery street, Jersey City, N. J., will erect a corrugated steel building for bridge and structural iron work on Mercer street, in the rear of its present plant, from designs furnished by

Nathaniel Roberts, designing and consulting engineer, of 160 Fifth avenue, New York, and 123 Glenwood avenue, Jersey City. The building will be 75 x 104 ft., one story. It will be erected on concrete piers, and will be of fireproof construction throughout. The company will install a 3-ton electric traveling crane and a line of up to date equipment for fabricating structural steel and iron. The company has done some work of this class in the past, but the demands on it have been so large that it has been found necessary to extend as soon as possible in order to keep up with its work. The machinery details have not been entirely arranged as yet, and they will be carried out by Alexander Hamill, who will supervise the erection of the building and make all the purchases.

The American Electrical Novelty & Mfg. Company, 308 Hudson street, New York, has purchased 115 acres of land in South Elizabeth, N. J., where a large plant for the manufacture of electrical novelties will be located. The company has no plans as yet, and it is stated that preparations for the construction of the plant will not be begun until spring. At present the company is operating a large plant at 308 Hudson street, where it manufactures electrical signs and electrically operated mechanical novelties, such as lamps, clocks, &c., and it is expected that when the new plant is built the New York plant will be moved to South Elizabeth.

The recently organized Ironton Malleable Iron Company, Ironton, Ohio, will be in the market for considerable equipment for its new plant, the main building of which will be 120 x 360 ft. Ground has been broken for the new buildings, which will be of steel construction.

The American Brake Shoe & Foundry Company, 170 Broadway, New York, has begun the erection of additions to its plant at Mahwah, N. J. They will consist of a two-story building, 40 x 40 ft.; a building 50 x 200 ft., and a one-story building, 30 x 150 ft. The company has been making some inquiries and several purchases in the market of late in the way of foundry equipment and the like, and it is thought that the apparatus is intended for the Mahwah plant.

George H. Claffin, Jr., 39 Cortlandt street, New York, is purchasing equipment for a leather board manufactory to be erected as an addition to the plant of the Fairfield Shoe Company, Lancaster, Ohio. The company is erecting three buildings, which are approximately 60 x 130 ft., 60 x 90 ft. and 10 x 50 ft., respectively, to be constructed of concrete, brick and wood. The company will install two gas engines, one 60 hp. and one 325 hp., to be furnished by the Miller Gas Engine Company of Columbus, Ohio. The equipment will also include three Claffin continuous pulp beaters, conveying machinery and other manufacturing equipment. The plant will be capable of turning out from 6 to 7 tons of leather board a day.

The Engineering & Construction Company, Morristown, N. J., is getting bids on equipment for a dam and power house to be built at German Valley, N. J., for the Kennedy Electric Company of that place. The dam will be 280 ft. long, and the power house will be 28 x 40 ft. The requirements include two 150-kw. generators. Emil Podlesak of the New Jersey Engineering & Construction Company is in charge of the buying.

The town clerk of Mineola, L. I., is receiving bids for equipment for a public water works to cost \$50,000, and the requirements include a pumping engine of 500,000-gal. capacity and appurtenances. Specifications call for a power house 34 x 36 ft.

The Hooven-Owens-Rentschler Company, Hamilton, Ohio, has closed orders through its New York office for two 500-kw. tandem compound direct connected engines for delivery in Mexico; one 200-kw. unit for the Citizens' Electric Company, Williamsport, Pa.; one 400-kw. tandem compound direct connected engine for the Bryant Electric Company, Bridgeport, Conn.; one 1800-hp. cross compound condensing engine for the Allentown Spring Company, Allentown, Pa., and four vertical triple expansion engines of 1000 hp. each for the Ridgewood pumping station.

At a meeting of the Rapid Transit Commission last week bids were opened for the construction of the three remaining sections of the subway tube at the Manhattan end of the Brooklyn Bridge. As the Bradley Contracting Company, New York, was the lowest bidder for each section, the board passed a resolution awarding the contracts to that company, subject to approval by the controller as to the sureties.

Business Changes.

De Fries & Cie, Akt. Ges., Düsseldorf, Germany, manufacturers and importers of tools and machinery, have recently opened branch stores and offices at 19 Rue de Rocroy, Paris, France, and 36 Rue Fossé aux Loups, Brussels, Belgium, to take care of their rapidly growing business in those countries. Both countries have been thoroughly worked for the past two years by the firm's traveling salesmen and agents, and the large volume of business derived has made necessary the establishment of the branches. These new stores will be stocked to a considerable extent with American tools and machinery, and the firm will be pleased to take the sole

agency for France and Belgium of American firms manufacturing first-class tools and machinery.

The Union Iron & Brass Works, El Paso, Texas, will be pleased to secure the agency in that district for a reliable manufacturer of a good wood split pulley.

The F. H. Brown Machinery Company, Park Building, Pittsburgh, will hereafter represent the Hamilton Machine Tool Company, Hamilton, Ohio, manufacturer of lathes, upright and radial drills, planers and shapers; and the Cincinnati Punch & Shear Company, Cincinnati, manufacturer of boiler makers' machinery.

The Ridgway Dynamo & Engine Company, Ridgway, Pa., builder of the McEwen engine and Thompson-Ryan dynamo, has appointed Samuel W. Hay's Sons, 302 Farmers' Bank Building, Pittsburgh, Pa., as its sales agent for the Pittsburgh District, southeastern Ohio and northern West Virginia.

The G. M. Yost Mfg. Company, manufacturer of vises, Mechanicsburg, Pa., is having such a large demand for its product that it has become necessary to add considerably to its equipment. Within the next 10 days the company expects to purchase one 20 or 22 in. engine lathe, one 1½-in. bolt cutter, one No. 3 milling machine and a toolroom grinder.

Philadelphia Machinery Market.

PHILADELPHIA, PA., June 18, 1907.

With the exception of the orders placed a few days ago by the Seaboard Air Line against their recent specifications, little business of importance has been transacted in the local machinery market. We understand that one of the leading interests took the bulk of this business, the remainder being scattered among various dealers and builders. Some little business was also placed by the Norfolk & Western Railroad for tools at its Roanoke shops. Outside of the above business, the volume of sales during the week past was not very large. Buying of single tools continues light, and in some cases dealers report business as being rather dull.

The conventions of the Railway Master Mechanics' and Car Builders' associations, together with the extensive exhibits of the Railway Supply Association at Atlantic City during the past 10 days, have claimed a large share of attention from both manufacturers and merchants in this territory, and this may in a way account for some of the apparent dullness, owing principally to the fact that local trade was not being pushed as aggressively as is customary. The exhibition of the Railway Supply Association on the Steel Pier was the largest and universally acclaimed the best that has ever been held. The local territory was exceptionally well represented among the exhibitors, which included among others the E. Harrington & Son Company, Incorporated; Wm. Sellers & Co., Incorporated; H. B. Underwood & Co.; Dill Machine Company; Schutte & Koerting Company; J. L. Bordo Company; Hess-Bright Company; P. S. Justice & Co.; Baldwin Locomotive Works; Henry Hitner's Sons; F. R. Phillips & Sons Company, all of Philadelphia; Bethlehem Steel Company, South Bethlehem, Pa.; Landis Tool Company and the Landis Machine Company of Waynesboro, Pa.; Stoeber Foundry & Mfg. Company, Myerstown, Pa.; A. Buch's Sons, Elizabethtown, Pa.; Riverside Metal Company, Riverside, N. J.; Keystone Drop Forge Company, Chester, Pa.; Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa.; and the Tindel-Morris Company and the High Duty Saw & Tool Company, Eddystone, Pa.

Inquiries for machine tools have only been fairly good. Local business, as has been the case in the past few weeks, is not very strong, the greater portion of the demand coming from the outside territory. No new specifications for tools in any quantity have been received by the trade generally and business appears as if the usual midsummer period of inactivity had already set in.

Manufacturers continue actively engaged, orders already on hand being more than sufficient to keep them fully occupied, in almost every case, well over the summer. There appears to be more new business coming out in special tools, and manufacturers of tools of this class have no doubt booked the larger number of the recent orders, outside of those recently placed by the railroads.

Foreign demand remains quiet, but little new business in any of the machine tool lines having developed recently. Manufacturers of specialties in power transmission lines, however, report quite a satisfactory business for this season of the year.

Boilers and engines continue in fairly good demand, particularly those of the higher powers. Some good business has been reported closed, with more under consideration. Business in the smaller capacities is not so active, while the demand for second-hand boilers and engines might be considerably better.

Second-hand machinery is reported in good demand, both merchants and dealers having made good sales, particularly

in tools of the heavier types. Inquiry for those of the medium sizes, however, is hardly as active, but the trade on the whole is in a generally good condition.

While both gray iron and steel casting plants are pretty fully occupied, it is reported that deliveries on some classes of gray iron castings are a shade easier. The tonnage of castings, particularly steel, for machinery purposes appears to be increasing, and some foundries have had more business offered than could be taken care of and deliveries made that were suitable to customers.

The Wm. Steele & Sons Company, architect and engineer, of this city, is estimating on a new boiler plant, 98 x 101 ft., for the Clark Thread Works, Newark, N. J. Particulars regarding the equipment are not obtainable at this time.

The Philadelphia Electric Company is continuing its plan of establishing transformer houses in various sections of the city, as previously noted in these columns. Contracts have recently been placed for another house at Marshall and Noble streets. This building will be 38 ft. 6 in. by 49 ft. 10 in., one story.

Hill, Clarke & Co., Incorporated, George H. Bauch, manager, after considerable delay, occasioned by alterations to their new warehouse and salesrooms, 512 Arch street, have moved from their former location on the Bourse Machinery Floor.

The Philadelphia & Reading Railway Company is preparing for proposals appurtenant to the abolishment of grade crossing of the Philadelphia, Germantown & Norristown Railroad. Detail drawings for the overhead work in connection with the removal of the surface tracks have been practically completed by the railroad engineers, and are almost ready for presentation to the city engineers for their approval, after which bids will be advertised for. It is probable, however, that this will not be done until about September 1.

Ph. Bonvillain & E. Ronceray of Paris, France, have established at 1315 Race street, this city, a demonstration plant showing their universal system of machine molding, where their various types of foundry molding machines are to be seen in operation at practically any time, preferably by appointment. A number of these machines were shown at the recent exhibition of foundry appliances held in this city in connection with the American Foundrymen's convention.

It is understood that the Wetherill Finished Steel Casting Company is taking estimates on a new foundry plant to be erected at Erie avenue and Richmond street, this city. Plans are by Stearns & Castor, engineers and architects. The main building is to be 85 x 126 ft., one story.

The Board of Trustees of the State Hospital for the Insane, Norristown, Pa., will receive bids through its Building Committee on all materials and supplies required for the erection of two ward buildings costing about \$100,000. This will include materials of every description entering into the work. Information and itemized lists of materials can be had from John L. West, steward, State Hospital for Insane, Norristown, Pa. Bids will be received until June 21.

Chicago Machinery Market.

CHICAGO, ILL., June 18, 1907.

In the absence of any large lists or inquiries to engage their attention, machine tool dealers have been occupied for the past week with routine business, composed mainly of single tool and small lot orders. Of these, however, there were enough to make a fairly good volume of business. Included in the trade of the week were a few miscellaneous purchases by railroads of odd tools picked up here and there, but no general buying by any of the important lines is reported. Altogether, trade is a shade quieter, and new business of a character indicating further expansion is perceptibly diminished. A reflection of the prolonged and unprecedented demand for all kinds of tools and machinery is seen in the large number of new plants and plant extensions noticeable on every hand. Many of these are still waiting for portions of their equipment, orders for which were placed months ago. But the demand from this source is not so insistent now, and there is manifestly less disposition on the part of manufacturers to still further increase capacities, even though they are somewhat inadequate for present needs. This view of the situation will exert a most helpful influence upon the future equilibrium of the market in event of a diminished demand. The improvement in deliveries of machine tools is by no means general, but there are some makers who are able to show definite results in catching up on delinquent shipments. Because of the great congestion in forward booking progress in this direction will necessarily be slow, but if uninterrupted by a fresh spurt of buying it will within a few months restore conditions to a more normal and healthful basis. The easing up of over strenuous demand is perhaps even more pronounced in motive power

machinery than in tool lines. While the leading makers of electric generators and motors are not less busy now than heretofore, order books are not filling up quite so rapidly with new business. Deferred deliveries are receiving better attention, though it will at best take considerable time to dispose of the accumulation. The same tendency toward quieter movement extends to boilers and engines, though here as elsewhere shops and factories have work in hand sufficient to engage their full capacities. There seems just now to be a lull in the development of new business. In this connection it may be observed that the approach of the midsummer season may naturally be expected to bring with it some degree of relaxation, and is no doubt one of the contributing causes operating to produce the slightly quieter trade movements noted.

The city of Chicago is asking bids on some auxiliary electric power plant equipment to be installed in the various lighting plants under municipal control. Proposals will be received by the City Electrician, William Carroll, Room 12, City Hall, until June 29, for switchboards and accessories, including all the various meters, motor starting panels, oil and other switches and lighting arresters for three power stations, as follows: One switchboard complete to provide for two 1200-hp. motors and equipment; two switchboards complete, each in separate station, to provide for two 1200-hp. motors and equipment; four single phase 60 cycle oil insulated step down transformers. Proposals will also be received until June 25 for furnishing and installing 30,500 ft., more or less, of three-conductor lead incased cables, which are required to be placed in the city conduits and tunnels and connected up ready for service by the contractors. Bids are also asked on the construction of a six-conduit system on Wentworth avenue, between Thirty-fifth and Sixty-third streets, comprising approximately 18,690 trench feet, together with 47 manhole vaults; also an eight-duct system on Western avenue, between Blue Island and Thirty-fifth street, of 5200 trench feet and 13 manhole vaults.

The city of Fort Wayne, Ind., has for some time had under consideration a municipal ownership proposition, which involved the building of a light and power plant. Plans have finally been completed, and bids are now being asked on inside and outside equipment for the generation and distribution of 1000 kw. Proposals will be received until June 24 on three 300-hp. water tube or internally fired boiler units, fitted with mechanical stokers or chain grates and induced draft appliance, together with a full complement of pumps, condensers, feed water heater, &c.; 6 ft. diameter steel stack, rising 30 ft. above a concrete base; two 500-kw. steam turbine generators, arc lamps and pole lines. Alternative bids are also requested on gas engines, capable of developing equivalent power. All work and contracts to be let for the new plant are under the direction of the Board of Public Works.

The manufacturing business belonging to the bankrupt estate of the Wm. Bayley & Sons Company, 732-766 Greenbush street, Milwaukee, Wis., which has for some time been operated by the Milwaukee Trust Company under a trusteeship, has been bought by the Bayley Mfg. Company. The business of the new company, which consists of the manufacture of steam fans, blowers, automatic steam traps, vertical and horizontal steam engines, and heating and ventilating engineering, is under the management of Wm. T. Doyle, who has had charge of the business under the Milwaukee Trust Company. The officers are: Fred Vogel, Jr., president; A. K. Hamilton, vice-president; Frederick T. Goll, secretary and treasurer.

The name of the Freeport Plumbing & Heating Company has been changed to the Compound Injector & Cleaner Company, and the business has been moved to Irving Park, Chicago, Ill., where it will continue the manufacture of Dehn's patent automatic feed waterback boiler and heater cleaner, compound, Kompost, hygienic grease traps, &c. The company is placing on the market a new and improved injector and Kompost brick, which is claimed to be simple and convenient to install and operate. This device, it is said, will prevent lime, magnesia and other incrusting minerals from accumulating in waterbacks, coils in furnaces, feed water heaters, boilers, &c. A new catalogue is now being prepared. After July 1 the company's offices will be located at 1195 West Irving Park boulevard, Irving Park, Chicago, Ill.

Cleveland Machinery Market.

CLEVELAND, OHIO, June 18, 1907.

The demand for machine tools has been very light. The dealers unite in attributing the falling off in their sales to the unseasonable and rainy weather, which has served as a check on various lines of business activity, and has greatly interfered with building operations. Dealers, however, are confident that the lull is only temporary, and that with the present improved weather conditions their business will show a corresponding improvement. In spite of the dull-

ness, the local demand for tools has been only slightly below the normal the past week, as June is usually about the poorest month in the year for the local machine tool dealers. Deliveries by tool manufacturers on stock orders are a little better, and as a result stocks on merchants' floors are somewhat larger than they were a few weeks ago. The only demand at present is for tools for early delivery. Manufacturers of machinery continue busy, and are well filled with orders. There is a heavy demand for hoists, cranes and machinery for handling ore and coal, and mining machinery for Western and Mexican mines, and manufacturers of this class of machinery have enough work to keep them busy for several months.

The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has received an order from the Indiana Steel Company for 24 Hughes mechanical gas producers for its new plant at Gary, Ind. This order makes 88 of the Hughes gas producers that the Steel Corporation has contracted for since the first of the year. These 88 gas producers are equal in capacity to 220 hand poke producers. The company has just shipped 15 Hughes producers to the Pennsylvania Steel Company, Steelton, Pa., and altogether has orders on its books at the present time for 100. It is erecting an electric car dumper and three electric transfer cars at the Duquesne Works of the Carnegie Steel Company. The dumper will dump cars up to 55 tons' capacity, and the capacity of the transfer cars will be 60 tons each. A moveable ore dumper is being built for the National Tube Company, at McKeesport, Pa., and two Hulett ore unloaders, which have been in course of erection at Lorain, Ohio, were put in successful operation last week. The machines have a capacity of 10 tons each. Other work in hand includes a large number of orders for mining machinery, special tube mill for Howell Hinds, Cleveland, according to designs of H. W. Hardinge of New York, which will be erected in the Cobalt mines; two large tube mills for Hendrie & Bolthoff, Denver; Anaconda Copper Mining Company, Butte, Mont., 30 x 60 in. double cylinder Corliss hoisting engine to hoist 50 tons at 20 miles an hour on a straight level track and to operate on a slope of 20 degrees from the horizontal. The company is just completing a shipment of 33 Chilean mills to the Garfield smelter in Utah, of the American Smelting & Refining Company, and has on hand orders for a number of hoists, mostly electric, for various mining concerns in Mexico.

The Standard Brass Foundry Company, maker of brass, manganese and aluminum castings, has increased its capital stock from \$10,000 to \$50,000, and will at once begin the erection of a large addition to its plant on Central avenue. The company will erect a one-story brick building, 64 x 98 ft., to be used as a molding room. The present plant contains 21,000 sq ft. When the addition is completed the company expects to give employment to 200 men. It has placed an order with the J. D. Foundry Supply Company, Cleveland, for 10 furnaces and a number of core ovens.

The Cowing Engineering Company has just completed a fine office building at the site of its new plant in Collinwood and has moved a portion of its office force to the new quarters from the Citizens Building. Work on its new structural plant has been delayed by the bad weather, but the material is now on the ground, and it is expected that the plant will be completed in July. The plant will consist of three buildings, one 200 x 450 ft., one 100 x 450 ft. and the third 60 x 100 ft.

The American Stove Company has definitely decided to rebuild the plant of the National Stove Company, Lorain, Ohio, which was recently partially destroyed by fire. The new plant will be built on a larger scale than the old one. Plans are now being prepared.

The Globe Machine & Stamping Company has purchased a tract of land on Salisbury avenue, near Edgewater Park, which it will use as a site for a new plant to accommodate its increasing business. The new plant will not be erected for at least a year.

The Macbeth Iron Company, manufacturer of blowing engines, heavy machinery, &c., has purchased a 10-acre site on West Madison avenue, and intends eventually to erect a new plant on the property.

The Bennington Typewriter Company, which was recently incorporated in Arizona with an authorized capital stock of \$2,500,000, has secured an option on several sites in Cleveland, and may decide to build a large factory here. W. H. Bennington of Columbus, Ohio, inventor of the machine, is president.

The Champion Steel Range Company, Cleveland, Ohio, has found the capacity of its plant inadequate to care for its large increase of business, and is adding a third story. The addition is of brick, 82 x 206 ft.

The Mistelski Automatic Machine Company is being organized in Alliance, Ohio, with a capital stock of \$25,000, to make machinery for the manufacture of concrete blocks and terra cotta, and metal working machinery. The company already has a large site and a temporary plant in op-

eration. It is the intention to build a large machine shop. Theodore Mistelski is the inventor of the machines and one of the principal promoters of the company.

James O. Timms, who for a number of years has been connected with the Buckeye Coupler Company, Columbus, Ohio, has secured patents for a new car coupler, and intends to incorporate a company for its manufacture. The plant will be located in Columbus.

Frank Moore, president of the Zanesville Malleable Iron Company, Zanesville, Ohio, has purchased a large tract of land adjoining the plant, with the view of building a large addition. The company's business has grown to such an extent that the present quarters are inadequate.

The Cooper Heater Company, Dayton, Ohio, has filed an application for incorporation with a capitalization of \$100,000. The company will manufacture heaters for street cars, steam cars and houses. The heater is the invention of George D. Cooper of St. Johns, Mich. A number of Dayton and Southern men are interested in the company. Negotiations are pending for the acquisition of a plant in Dayton. John D. Cooper, New Orleans, is president; George D. Cooper, vice-president; Edward Martin, New Orleans, treasurer; Dr. F. R. Martin, Crowley, La., secretary, and W. L. Blackwell, Dayton, general manager.

New England Machinery Market.

WORCESTER, MASS., June 18, 1907.

Conditions have conspired to produce a noticeable lull in the machine tool trade the past few days. Monday, the anniversary of the battle of Bunker Hill, is celebrated as a holiday in Boston, causing a gap in business, and Tuesday followed with extremely hot weather, so that business had to diminish temporarily in the natural order of things. Apart from this combination of circumstances, there is every sign that the summer lull of business has set in. The dealers have expected it and are not sorry. They believe that it will be for the best interest of all concerned to have the demand fall off a little, in the hope that the manufacturers will be able to catch up to some extent on deliveries and be ready for a more normal condition in the autumn.

The dealers find that the standard types of tools, especially those which have been hardest to get during the year past, are greedily seized by their customers as soon as they reach the stores, and, in fact, as soon as it is found that deliveries can be made in reasonable time. Machines are being received on stock orders placed months ago, and these are being sold rapidly. But, taken as a whole, there is a falling off of business, excepting for quick delivery, and most of the machine tool builders agree with the dealers that inquiries are not so numerous as they were a few weeks ago. The difference is not a very marked one; in fact, it is not recognized by all. It is confidently expected that it will not materially affect trade, even if the fall should not see a return to the full high tide of prosperity that has characterized the past year.

No large business is in sight. The large buyers are keeping out of the market at present, and most sales are for small lots and single machines.

The demand for skilled labor shows little change. The labor bureaus are finding little difficulty in securing places for their applicants for work, and many employers are seeking to find additional labor, especially where works have been increased. The case of the Pratt & Whitney Company, Hartford, is a typical one. The great new addition, embracing nearly 140,000 sq. ft. of floor space, is now partly occupied. The company is anxious to secure some 300 more workmen of good quality, but is finding difficulty in achieving the desired result. Other concerns with opportunity for additional manufacturing capacity are handicapped in the same manner. While manufacturers are occasionally heard to say that they are receiving more applications for positions than a few months ago, the experience of the majority who are after help does not bear out the statement as one of prevailing general conditions.

The Connecticut Metal Company, Bridgeport, Conn., which is closely affiliated with the Pacific Iron Works, has organized with the choice of D. M. Brady, New York, as president; H. A. Bishop, Bridgeport, vice-president; A. J. Porter, Bridgeport, secretary and treasurer. The fourth incorporator is William E. Burnham, Bridgeport. The company states that it is not yet in a position to give the details of its product.

The New England Enameling Company, Middletown, Conn., manufacturer of enameled steel wares and tin and galvanized wares, is erecting an addition to its works, 45 x 50 ft., one story, of concrete and frame construction.

The Waterbury Clock Company, Waterbury, Conn., is to build large additions to its works, increasing the capacity of its woodworking department. The main building will be a five-story brick structure, 42 x 350 ft., with a five-story wing, 42 x 125 ft.

Landers, Frary & Clark, New Britain, Conn., manufac-

turers of hardware, have broken ground for a large addition to their works, consisting of a six-story building, 50 x 500 ft. The new space will be devoted to the manufacture of general hardware.

Edward L. Pollock, purchasing agent of the New York, New Haven & Hartford Railroad, New Haven, Conn., has resigned to accept a position with the Rock Island Railroad.

Government Purchases.

WASHINGTON, D. C., June 18, 1907.

The Bureau of Supplies and Accounts, Navy Department, Washington, will receive bids until June 25 for machinery for the following navy yards: Portsmouth, schedule 955, lathe, surfacer; Boston, schedule 921, pump; schedule 937, pneumatic drills and hammers; New York, schedule 919, drill press, pipe threader; League Island, schedule 920, lathe, dovetailer, wood borer; schedule 921, motor, mortisers, planers and jointers, dado machine, tenoning machine; Washington, schedule 941, motor; Norfolk, schedule 920, boring mill, metal saw, electric pump; schedule 937, lathes, drills, motor.

The Isthmian Canal Commission will receive bids until June 27, circular No. 371, for dynamos, engines and other supplies.

The following bids were opened June 11 for supplies for the navy yards:

Bidder 2, W. E. Austin Company, Atlanta, Ga.; 7, American Ship Windlass Company, Providence, R. I.; 9, American Woodworking Machinery Company, Rochester, N. Y.; 17, Berger & Carter, San Francisco, Cal.; 23, G. F. Blake Mfg. Company, New York; 26, Buckeye Iron & Brass Works, Dayton, Ohio; 29, A. Box & Co., Philadelphia, Pa.; 32, Bridgeport Safety Emery Wheel Company, Bridgeport, Conn.; 33, Becker-Brainard Milling Machine Company, Hyde Park, Mass.; 34, Brown Hoisting Machinery Company, New York; 35, Bullard Machine Tool Company, Bridgeport, Conn.; 36, W. N. Best American Caloric Company, New York; 42, Brown & Sharpe Mfg. Company, Providence, R. I.; 44, Brooklyn Forge & Supply Company, Brooklyn, N. Y.; 56, W. W. Clark & Son, Baltimore, Md.; 57, Central Metal & Supply Company, Baltimore, Md.; 63, Chicago Pneumatic Tool Company, New York; 68, Wm. Curry's Son Company, Key West, Fla.; 72, Columbus Pneumatic Tool Company, Columbus, Ohio; 81, M. T. Davidson, Brooklyn, N. Y.; 91, Fairbanks Company, Baltimore, Md.; 92, Fairbanks Company, Philadelphia, Pa.; 95, Frevert Machinery Company, New York; 96, Fox Machine Company, Grand Rapids, Mich.; 98, J. A. Fay & Egan Company, New York; 99, Farrel Foundry & Machine Company, Ansonia, Conn.; 101, Walter H. Foster Company, New York; 110, Garvin Machine Company, New York; 114, Richard W. Geldart, New York; 134, Harron, Rickard & McCone, San Francisco, Cal.; 138, Hendey Machine Company, Torrington, Conn.; 139, Hilles & Jones Company, Wilmington, Del.; 145, Ingersoll-Rand Company, New York; 146, Independent Pneumatic Tool Company, Chicago, Ill.; 154, Jones & Lamson Machine Company, Springfield, Vt.; 156, Knox & Bro., New York; 161, Kenworthy Engineering Company, Waterbury, Conn.; 162, Lidgerwood Mfg. Company, New York; 170, Motley, Green & Co., New York; 175, Municipal Engineering & Contracting Company, Chicago, Ill.; 177, Wm. B. Merchon & Co., Saginaw, Mich.; 178, Monarch Engineering & Mfg. Company, Baltimore, Md.; 181, Montgomery & Co., New York; 182, Manhattan Supply Company, New York; 183, Manning, Maxwell & Moore, New York; 189, Northern Engineering Works, Detroit, Mich.; 190, Niles-Bement-Pond Company, New York; 192, New Jersey Foundry & Machine Company, New York; 196, Northern Electric Mfg. Company, Madison, Wis.; 198, Oliver Machinery Company, New York; 199, Oliver Machinery Company, Grand Rapids, Mich.; 200, Platt Iron Works, Dayton, Ohio; 207, Powell & Colne, New York; 208, Pawling & Harnischfeger, Milwaukee, Wis.; 211, Pacific Tool & Supply Company, San Francisco, Cal.; 212, Prentiss Tool & Supply Company, New York; 214, Quincy-Manchester-Sargent Company, New York; 216, Rockwell Engineering Company, New York; 218, H. A. Rogers Company, New York; 219, John B. Roache, New York; 229, Stoeve Foundry & Machinery Company, Myerstown, Pa.; 237, Sherman-Brown-Clements Company, New York; 254, B. F. Sturtevant Company, Hyde Park, Mass.; 256, A. G. Spaulding & Bro., New York; 263, Tate, Jones & Co., Pittsburgh, Pa.; 274, Vermilye & Power, New York; 280, Williamson Bros. Company, Philadelphia, Pa.; 281, Whiting Foundry Equipment Company, Harvey, Ill.; 288, Warren Steam Pump Company, New York; 290, R. M. Wilkinson Company, Norfolk, Va.; 304, Crescent Machine Company, Letonia, Ohio; 306, Excelsior Equipment Company, Pittsburgh, Pa.; 316, American Blower Company, Detroit, Mich.; 317, Buffalo Forge Company, Buffalo, N. Y.

Class 1. One tropenas steel casting plant—Bidder 36, \$69, part; 207, \$8408.

Class 4. One foundry cold saw—Bidder 17, \$1550; 214, \$1721.30.

Class 5. One automatic saw sharpening machine—Bidder 17, \$340; 134, \$307.85; 199, \$186.

Class 6. Two crucible tilting furnaces—Bidder 178, \$650.

Class 7. One double chamber furnace—Bidder 216, \$1640.

Class 8. One universal milling machine—Bidder 33, \$2275; 42, \$2538.50; 134, \$2095 and \$1841; 190, \$2148; 211, \$2400.

Class 9. One alligator shear—Bidder 99, \$2590; 139, \$3350.

Class 10. One engine lathe—Bidder 190, \$3320.

Class 11. One high duty shaper—Bidder 134, \$1240.

Class 12. One band saw—Bidder 9, \$335; 134, \$478.30; 199, \$615, \$668 and \$643.

Class 13. One vertical boring and turning mill—Bidder 211, \$2850.

Class 14. One planer—Bidder 134, \$3288; 190, \$3315.

Class 15. One pipe bending machine—Bidder 44, \$212.50; 134, \$255.70; 156, \$243.50; 218, \$232.25; 229, \$950.

Class 16. One band resaw—Bidder 9, \$1700; 134, \$1527.88; 177, \$1775.

Class 141. One improved batch revolving concrete mixer—Bidder 2, \$701; 56, \$600; 68, \$610.50 and \$650; 156, \$442.33; 175, \$585; 237, \$540; 257, \$770; 306, \$674.

Class 151. One speed lathe—Bidder 95, \$234; 199, \$508; 212, \$373.

Class 152. One pillar shaper—Bidder 138, \$750; 190, \$998.

Class 171. One patternmaker's speed lathe—Bidder 98, \$535; 198, \$211.

Class 172. One flat turret lathe—Bidder 154, \$1460.

Class 173. One hand planer and jointer—Bidder 96, \$235; 98, \$390.55; 198, \$506.

Class 174. Two heating furnaces for drop hammer and for rivet and bolt machines—Bidder 26, \$658; 161, \$530.56; 183, \$550; 216, \$380; 263, \$365; 290, \$380.

Class 175. One oil furnace equipment—Bidder 26, \$18,203.50; 161, \$10,507.83; 216, \$11,775; 290, \$15,340.

Class 177. One electric traveling crane—Bidder 29, \$4186; 183, \$4984; 189, \$4380; 190, \$4200; 208, \$4270 and \$4500; 281, \$4490.

Class 178. One electrically driven plunger pump and spare parts—Bidder 23, \$676; 81, \$650; 170, \$803.

Class 179. Two steam winches—Bidder 7, \$2200; 162, \$2020; 280, \$1800.

Class 181. One motor driven universal plate, angle and bar shear—Bidder 95, \$1462.

Class 182. One motor driven improved pipe cutting, threading and nipple machine—Bidder 101, \$1525 and \$1600; 183, \$2030; 190, \$1648.

Class 183. One band sawing machine—Bidder 96, \$529; 98, \$631.30; 198, \$525; 304, \$500.

Class 184. One patternmaker's wood lathe—Bidder 96, \$760 and \$680; 98, \$636.65; 198, \$860, \$930, \$980, \$638 and \$698.

Class 188. One hand planer and jointer—Bidder 96, \$440; 98, \$508.25; 198, \$618 and \$418.

Class 189. One high duty shaper—Bidder 91, \$1575; 190, \$1248.

Class 190. One universal cutter and tool grinder—Bidder 91, \$425, \$463, \$479.50, \$487 and \$489.25.

Class 191. One water tool grinder—Bidder 32, \$265; 91, \$283; 95, \$278; 182, \$320; 183, \$284; 190, \$210.

Class 192. One standard radial drill—Bidder 91, \$890; 183, \$965, \$915 and \$952; 190, \$883.

Class 193. One friction driven sensitive drill—Bidder 91, \$130.

Class 194. One engine lathe—Bidder 110, \$1260; 138, \$1090 and \$1250; 183, \$1090; 190, \$1198.

Class 195. One screw cutting engine lathe—Bidder 110, \$985; 138, \$827; 183, \$827; 190, \$908.

Class 196. Two change gear, screw cutting engine lathes—Bidder 91, \$5840 and \$5520; 110, \$4600; 190, \$4615 and \$5140.

Class 197. Two change gear, screw cutting engine lathes—Bidder 91, \$3000; 110, \$2700; 138, \$2876; 183, \$2876; 190, \$2448.

Class 198. One standard boring and turning mill—Bidder 35, \$3106; 91, \$2925; 101, \$3756; 183, \$3500; 190, \$3740.

Class 200. One motor and gear for converting belt driven lathe into an electric operated appliance—Bidder 196, \$1290.

Class 201. Seven forges and one motor driven fan for forge blast—Bidder 316, \$840, part; 317, \$1162.50.

Class 203. Two blowers and engines—Bidder 254, \$1370; 317, \$1034.

Class 291. Eight triplex ammunition trolley hoists—Bidder 34, \$1000; 114, \$1099.92; 182, \$1080; 192, \$937.20; 274, \$572.

Class 331. One pneumatic drill—Bidder 63, \$80; 145, \$90; 146, \$59.75.

Class 332. One pneumatic hammer—Bidder 63, \$50; 72, \$38; 145, \$34; 146, \$36.50.

Class 333. Two clipping hammers—Bidder 63, \$90; 72, \$69; 145, \$72.70; 146, \$73; 156, \$111.

Class 334. One valve reseating machine—Bidder 57, \$325; 92, \$325; 114, \$325; 156, \$325; 181, \$325; 182, \$325; 183, \$325; 219, \$325; 237, \$325.

Class 335. Eight hydraulic jacks—Bidder 56, \$180.20; 92, \$167.80; 156, \$172.50; 182, \$175.20; 183, \$160.40; 219, \$155.40; 237, \$160.80.

Class 336. One vertical circulating pump—Bidder 23, \$1096; 81, \$1395; 288, \$1175.

Class 362. Delivered at bidders' works, five steam driven torpedo air compressors—Bidder 145, \$26,250; 200, \$18,000.

The following bids were opened June 12, circular No. 368, for supplies for the Isthmian Canal Commission:

Bidder 14, T. P. Castle, Quincy, Ill.; 17, Bobbie Foundry & Machine Works, New York; 20, Exeter Machine Works, New York; 21, Fairbanks Company, New York; 23, Fox Bros. & Co., New York; 31, E. L. D. Hester, New York; 35, Hallidie Machinery Company, Seattle, Wash.; 37, Lambert Hoisting Engine Company, Newark, N. J.; 39, Lidgerwood Mfg. Company, New York; 40, Henry J. McCoy Company, New York; 42, Manning, Maxwell & Moore, New York; 48, Motley, Green & Co., New York; 49, New York Cableway & Engineering Company, New York; 50, Niles-Bement-Pond Company, New York; 52, Pittsburgh Industrial Iron Works, Pittsburgh, Pa.; 54, Queen City Supply Company, Cincinnati, Ohio; 57, Chas. E. Robidaux, St. Louis, Mo.; 66, Stroudsburg Engine Works, Stroudsburg, Pa.; 69, Vermilye & Power, New York.

Class 13. Six hoisting engines—Bidder 17, \$6669, 60 days; 20, \$5388, 60 days; 35, \$6080.40, 100 days; 37, \$6086.70, \$6521.40, \$6005.70 and \$6201.90, sht., 10 days; 39, \$6882, 35 days; 40, \$6030, no time; 31, \$6006, 120 days; 48, \$6285, 75 days; 49, \$5976, no time; 52, \$5760, 45 days; 54, \$6180, 90 days; 57, \$6150, 150 days; 66, \$5970, 90 days; 69, \$5664, 75 days; 72, \$5190, 84 days.

Class 14. Two engine lathes—Bidder 21, \$5040, 180 days; 23, \$3740, 110 days; 35, \$3590.50, 100 days; 42, \$2973.88, 150 days; 50, \$4640, 105 days; 14, \$3270, 150 days.

Bids were received as follows at the office of the chief signal officer of the army, June 8, for furnishing telautograph motor generators and alternating current generator:

Item 1, three telautograph motor generators; 2, one kw. alternating current generator.

Fort Wayne Electric Works, Fort Wayne, Ind., item 1, \$340 each; 2, \$220; delivery in 70 days.

National Electric Supply Company, Washington, D. C., item 1, \$420 each; delivery in 125 days.

Fidelity Electric Company, Lancaster, Pa., item 1, \$450 each; 2, \$160; delivery in 90 days.

Sprague Electric Company, New York, item 1, \$420 each; delivery in 60 days.

Federal Electric Company, North Girard, Pa., item 1, \$316 each; delivery in 60 days.

Crocker-Wheeler Company, Ampere, N. J., item 1, \$342; delivery in 80 days.

General Electric Company, Schenectady, N. Y., item 1, \$445; 2, \$130; delivery in 130 days.

Bids for constructing a single screw suction dredge for Columbia River, Ore., were received by J. C. Sanford, major of engineers, United States Army, Philadelphia, Pa., June 7, as follows:

Moran Company, Seattle, Wash., \$285,000; time, 14 months; delivery at Seattle, Wash.

Newport News Shipbuilding & Dry Dock Company, New York, \$234,500; time, 11 months; delivery at Newport News, Va.

Maryland Steel Company, Sparrows Point, Md., \$239,850; time, 11 months; delivery at Sparrows Point, Md.

Bids were opened June 10 by the supervising architect for seven new high pressure steam boilers and accessories for the post office and sub-treasury building at Boston, Mass., as follows:

The Bueskel Company, Boston, Mass., \$47,092; time, 128 working days.

English & Flett, Boston, Mass., \$39,947; time, November 1, 1907.

C. H. Sanborn, Boston, Mass., \$41,950; time, October 1, 1907.

Walworth Construction & Supply Company, Boston, Mass., \$40,876; time, as specified.

Lynch & Woodward, Boston, Mass., \$38,379; time, November 10, 1907.

Under bids opened May 28 for supplies for the navy yards, class 21, one 9-ton wheel mill for grinding gun powder has been awarded to the I. & E. Greenwall Company, Cincinnati, Ohio, \$3803; class 62, one boiler, Babcock & Wilcox Company, New York, \$3381.

The following awards have been made for supplies for the navy yards, bids for which were opened June 4:

Manning, Maxwell & Moore, New York, class 130, three hydraulic jacks, \$172.50; class 156, one boiler testing pump, \$100.

Sherman, Brown, Clements Company, New York, class 184, 12 hydraulic jacks, \$365.40.

OBITUARY.

FRANCIS BOLLING, senior partner of the old established firm of Bolling & Lowe, iron and steel merchants, London, England, is dead. He was born in Copenhagen, Denmark, where his father was director in chief of the Royal Library. As a young man he removed to England and was for some time with the banking firm of C. I. Hambro & Son. After an interval passed again in Denmark he returned to London, where he became connected with the firm of William Bird & Co., whose business he eventually took over in conjunction with the late J. E. Lowe, and later took into partnership L. Reincke and Clarence Bird, nephew of the late William Bird, who had also been some time connected with the firm. Mr. Bolling was for many years on the Board of the British Iron Trades Association and was a member of the London Chamber of Commerce. The late King Christian of Denmark conferred upon him the Order of the Dannebrog. He leaves a widow and one son.

THOMPSON McCOSH, once quite prominent in Mississippi Valley trade circles, died June 6 at Burlington, Iowa, aged 76 years. He founded and for many years managed the McCosh Iron & Steel Company of Burlington, manufacturing barb wire and wire nails. The failure of the company, which occurred in the early 90's, ruined him financially, and he was unable to retrieve his fortunes.

AUGUSTUS TRUMP, for some years secretary and treasurer of the Pittsburgh Steel Foundry, died suddenly at his home in the East End, Pittsburgh, on June 11, of heart failure.

CHARLES FRANCIS CRIPPS, a retired file manufacturer, died last week at his home in Philadelphia, Pa., aged 79 years. He was widely known as a philanthropist, giving freely to charity and missionary work.

EDWARD MAHER, a member of the firm of Maher & Flockhart, foundrymen, and a former police commissioner of Newark, N. J., died June 15, aged 55 years. He served for several terms as a member of the Board of Education of Newark. He was also a member of the State Board of Education. He was a native of Ireland and came to America with his parents when two years old, settling in Newark. He was a trustee of St. James Hospital and one of the vice-presidents of the Newark Board of Trade.

WILLIAM LE BARON JENNEY, one of the leading architects of Chicago and originator of modern steel construction, died June 14 at Los Angeles, Cal., aged 74 years. In 1883 he was appointed architect for the Home Insurance Company of New York, with instructions to prepare designs for a tall fireproof office building at Adams and La Salle streets, Chicago. The order further called for a maximum number of well lighted small offices above the second story. The result was a steel skeleton building of the type now so generally employed in erecting tall buildings.

ENOCH R. MORSE, inventor of the Morse concealed dial, and a recognized expert on safes and vaults, died at East Somerville, Mass., June 12, aged 84 years. He was a native of Attleboro, Mass., and entered the safe business at Boston in 1839. In 1844 he established a safe business of his own under the name of E. R. Morse & Co., and some 18 years ago formed the E. R. Morse Safe Company. He retired from active business 10 years ago. He was active in the affairs of Somerville and served on the School Committee and in the Legislature.

On account of the large number of orders being received by the Wm. B. Scalfé & Sons Company, Pittsburgh, for the Scalfé and We-Fu-Gó water softening and purifying systems, the company has been compelled to enlarge its capacity for building these systems, and has recently made a large addition to its shops at Oakmont, Pa., in which has been installed considerable special machinery for increasing its output.

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HARDWARE

THERE is getting to be a fitting recognition of the influence upon traveling salesmen of advices from their principals, keeping them in touch with the establishment with a view to aiding them in their efforts to secure orders. The manner in which this is accomplished naturally varies greatly according to circumstances and the personal characteristics and idiosyncrasies of those who are charged with the responsibility of directing the energies of the traveling force. In general the aim of such communications is to give the salesman information which will be of service to him in marketing the goods which he has to sell, so that he may be thoroughly posted with up to date advices in regard to the various lines he is offering, being equipped with particulars and suggestions of interest to him or his customers. One who is thus in close touch with the factory or the distributing establishment is given an opportunity to have an alertness, freshness and authority in the presentation of his wares which are not readily obtainable by the salesman who is left practically to his own resources and such points as he picks up along the way. A great advantage is possessed by the salesman who is so coached by his principals as to be able to view things from their standpoint, and to talk intelligently and authoritatively to his customers in regard to the goods he is handling, the conditions in related lines and the course and tendency of the market. All this has a broadening effect upon him and tends to make him a more welcome visitor and better salesman.

Not a few who are directing the traveling salesmen, in addition to communicating with them for the purpose of imparting information and keeping them posted in regard to the products they are selling, endeavor in one way or another at the same time to stimulate them in their efforts in such a way as to develop their enthusiasm and call out their best and most untiring energies. In doing this it is needful that tact and not a little ingenuity be employed, so that the result desired shall be accomplished without arousing unpleasantly the sensibilities of the salesman or giving the impression of a captious and fault-finding spirit, which in trade as elsewhere is almost invariably mischievous in its influence. How the desired end is best to be secured is a question which presents an interesting and complicated problem to the manager of the sales department. Notwithstanding the admirable methods of progressive houses and the substantial improvement which is noticeable in the usage of the best concerns who keep a force of men on the road, there is with most merchants and manufacturers who sell goods in this way an opportunity to make their system more complete, to carry it out more consistently, and probably to work on new lines. The result of wisely directed efforts in this direction should not only cause an increase of the volume and profitableness of the business, but a development of the ability of the salesman and the improvement of the service rendered to customers. This is a matter, therefore, proper attention to which should result in methods which will have an educational, elevating and broadening tendency throughout the trade.

Condition of Trade.

Contrary to the expectations of many merchants, the advent of real summer weather seems not to have greatly stimulated trade. In some quarters the market seems thus early to be drifting into the dullness usually expected during the midsummer. Manufacturers, however, still have a great deal of business on their books, and prices continue steady on such orders as are being placed. Considerable complaint has been heard recently in regard to business from the South, but it is probable that the situation in the cotton belt is not seriously different from its usual condition during the month of June. Jobbers in most sections are kept well occupied with current business, although relieved to some extent from the strain incident to the excessive demand of a year ago. The retail trade apparently is not likely to recover fully the business lost during the spring, when purchases of consumers were held back by the unseasonable weather. Some lines of seasonable goods, however, are a little more active, notably Wire Screen Cloth, Refrigerators, Ice Cream Freezers, &c. Deliveries continue to improve, and there is a steady clearing up of back orders by manufacturers whose facilities have been overtaxed for many months.

Chicago.

The warmth and sunshine of recent days has done much toward relieving a rapidly growing apprehension of serious damage threatened by the persistent continuance of unseasonably cold weather. The effects of the adverse prospects, that up to a week ago menaced the corn crop, were beginning to find expression in a perceptible hesitancy of trade. In some lines it was even more pronounced than in Hardware, but even there it was evident. Reports now pretty generally agree that the advent of growing weather has brightened the situation and a more optimistic feeling prevails. Trade is, on the whole, somewhat quieter as regards new business. Manufacturers and their representatives report a more moderate demand, and the buying movement shows a little abatement from the crowding pace of preceding months. No hesitation is noticed, however, in the offering of specifications on contracts and shipments from factory, and jobbers' stocks are still heavy. Deliveries continue to improve, and the tense strain of abnormal activity is gradually being relieved. The quieter trend of affairs is regarded with complacency, and is not construed as indicative of hurtful reaction. So far this month jobbers' sales are in excess of those of a year ago for the same period, and are expected to maintain the average for the second half. An active movement in Screen Doors and Wire Cloth has begun in the Southwest, though in the North and Northwest consumers have had but little need for these goods, and but few reorders have been received from that region. Agricultural Implement makers have been placing large contracts for Bolts, Nuts and Rivets, and it is said that the recent advances in Bolts have been well maintained. Galvanized Sheets are still scarce, and the improvement in deliveries is discouragingly slow. The situation in Black Sheets is somewhat better, but by no means satisfactory. Wire Nails and Barb Wire are not yet being furnished promptly enough to wholly satisfy requirements, and scarcity in some sizes of the former is at times complained of. Prospects point to easier conditions during the quiet summer months, and it is the hope of both dealers and makers that during this period the harassing troubles of congested capacities will be relieved.

Cleveland.

THE W. BINGHAM COMPANY.—The general Hardware trade considering the cold and rainy weather we have had for the last two weeks is remarkably good. The season is unusually backward, and for this reason undoubtedly the trade in Farming Utensils will continue up to August 1, anyway. Scythes, Snaths, Scythes Stones, Grass Hooks, Lawn Rollers, Lawn Mowers, Freezers and Refrigerators are being sold quite freely. A large amount of building is going on throughout the country, and the better class of house trimmings have the call. It is wonderful what effect a little sunshine and warm weather has upon country trade. It brightens up at once on the first appearance of nice weather. There is a large demand at the present time for Nails and Wire Fencing, indicating that while the weather is unpropitious for farmers to till the land, they are busy repairing their fences and barns and other buildings.

There seems to be no let up in the sale of supplies in the mining milling and manufacturing line, as they all seem to be very busy and need, and are buying a great many goods. There is still a shortage in the leading or standard sizes of merchant pipe and some kinds of fittings. Never in the history of the country has there been such a large consumption of these classes of goods as there has been in the last 18 months.

An immense amount of goods is being transported by the railroads throughout the country, and we understand that contracts for a large number of new freight cars are being placed by some of the leading railroad companies indicating that they intend to keep up as far as possible with the demand for increased transportation facilities.

We look for a good steady trade throughout the balance of this year. Prosperity seems to be in all our borders.

St. Louis.

NORVELL-SHAIPLEIGH HARDWARE COMPANY.—We "touch wood" while we write that the weather is beautiful. It hasn't rained for three days. The strawberry crop was ruined by frost, but we are buying strawberries in the market to-day at 10 cents per box, and there are lots of them.

According to recent reports wheat has not been damaged as much as some people stated. Some of our salesmen from Missouri and Illinois tell us they never saw a better prospect for winter wheat at this time. Our friends in the South write us they have had to plant cotton two or three times. This of course is very much like work, but we remember some of the greatest cotton crops this country has ever had have been in years when cotton had a late start. Corn is also late, but it is not too late.

The tales of crop disaster have looked to us all along like manipulation. At the millers' convention, held a short time ago in St. Louis, we said if we were speculating we would sell wheat short. Now we have the pleasure of saying "I told you so."

Notwithstanding all the pessimistic reports business continues unusually good. Sales are running ahead of last year. Orders for fall goods are coming in nicely. There are bad spots here and there, but taking the situation all in all we see no grounds to do any calamity howling.

When we wrote recently about the number of our citizens who are "toting" pistols, we did not know the President was included in the list, but it seems when they lifted up his coat tails at a function in Washington they found a great big revolver in his hip pocket. We wonder what make it was. We wonder what brand the President prefers. Nothing was said about the other pocket, and we wonder whether a pint or a quart was there. With all the cranks and crazy people who are running loose in the country we do not blame the President for carrying a gun. We hope, however, that this incident will not make the fashion more popular. The same necessity for carrying light artillery does not exist in the case of most common ordinary citizens.

Vacation time is with us. Vacations have become an institution. The clerk now talks about "his" vacation. Like anything else, vacations are subject to abuse. Some

of our people come back in a badly damaged condition. Vacations should be taken "judgmatically"; most of the trouble comes from overdoing them.

Edison recently wrote a very interesting article on this subject. He suggested that the farmer on his vacation should go to the city and the city man to the country, the man who lives in the mountains should go to the seashore and the man on the seashore should go to the mountains. The gist of it all was that each one of us should get just as much change as possible.

We believe vacations are a good thing, but often the man who is slaving for a large family does not get his, while the young fellow without any responsibilities and who does not need a vacation is right on deck when the boat leaves. Too often it is the case that everybody takes a vacation "but father," when probably father needs it most of all.

On the other hand, all over the country we will have nice, pleasant little groups of summer bachelors who will try their best to while away the weary hours while their families are gone. In the mountains and at the seashore there will be nice little groups of summer widows, reading summer romances and wondering if somebody or something will turn up. Probably new associations will be made by husbands and wives. Some may be for the better, some for the worse—who knows? Jes so! Jes so!

Prices are being well maintained. Some kinds of goods are still scarce. One prominent manufacturer writes us that he is now just starting to work on his February orders. We are surprised at the large current business from stock on such goods as Screen Doors and Refrigerators.

This has been a great season for the sale of Lawn Mowers, but a very bad season for the sale of Rubber Hose. Last year it was different. Then we could not fill our orders for Rubber Hose, and now we have Rubber Hose for sale. Our buyer of this line wants to know if we expect him to be a clairvoyant, to be able to tell in advance whether it will be a wet or a dry season. We have informed him every first-class buyer should always be able to prognosticate the future.

Next week the Hardware clans will gather in Boston. The broad "a" of the East will mingle with the narrow "a" of the West, the supposed nasal twang of New England will mingle with the alleged soft, lisping accent of the Southerner. These gentlemen will all attend strictly to business, and, as the editor of *The Iron Age* would say, all their deliberations will be of a "calm and judicial character." The retail trade will be reminded that the jobber is a middleman, and somebody will want to know what right he has to live on this earth. Then there will be a paper, "Is the Jobber a Necessity?" and we hope somebody will answer, "He may not be a necessity, but he is an 'izzer'."

Louisville.

BELKNAP HARDWARE & MFG. COMPANY.—The crop reports as they come in are not overencouraging. We keep on hoping for warm, bright weather in the surrounding and Southern country, but instead have been treated to a succession of destructive storms, floods and cloudbursts, followed by cold nights, until we have gotten to take them as much as a matter of course as the daily ham and eggs at our rural hotel breakfast table.

The wonderful part of it is that, with all of this discouragement from the river bottoms and the thrice planted cotton field districts, and reported shortages of all kinds of things that grow in acres and sell by the bushel, there still continues a large amount of business. The centers of trade industry, where there are mills and factories and added construction, all of the things which go to make wages and consequent purchasing power for the people, seem to be uninterruptedly active.

We do not see that deliveries of the staples seasonable are much improved, and we are certain there is no weakness yet reflected in prices. What is selling from the farm brings such remunerative returns that the country banks have become plethoric depositories and consequent lenders of money to an extent they never dreamed of before. Several of the banks in the small towns in our own

State with which we are familiar have doubled their capital and show a fine pyramid of deposits by descending years.

There are more houses to the acre and more Paint to the houses, better fed mules in the wagons and better Harness on the mules than there were a couple of years ago. It is fair to presume that the kitchen and bedroom inside the cabins and houses have their share of this prosperity, and that better Bedsteads and more elaborate Cooking Stoves than the mistress of the house thought possible five years ago, to say nothing of Pianos and improved Washing Machines, are the rule.

Harvesting in the lower part of our own State has begun, and the whir of the Mowing Machine is pleasant music in the ear of those who own the ripening fields of wheat.

Our travelers' reports from a large portion of the State of Texas give encouragement from that quarter, and our vice-president, who attended the Arkansas Hardware meeting, brings back words of encouragement, not only by reason of the prospects of that State, so variedly productive in its agriculture, timber and mines, but also by reason of the order of men who are engaged in the distribution of Hardware throughout its boundaries. That is what we look forward to, a constant elevation of the standards in our calling, with a sincere desire to serve the community, while we reap a modest reward for our labors and sacrifices, and that each one of us shall go onward with the assurance of the mere fact of a man belonging to the Hardware business is as it were a patent of nobility.

Nashville.

GRAY & DUDLEY HARDWARE COMPANY.—Most of the Southern jobbers are either in the midst of their annual stock taking or finishing it up, as this is the season when Southern houses perform this disagreeable task. Everything indicates that the past year has been one of the best and most satisfactory that Southern houses have ever had, and we feel sure that the majority of Southern concerns are well pleased with the past year's results.

In our last letter to you we made a rather blue report of present conditions, but we are now very much pleased to state that conditions have greatly improved during the past two weeks. The weather has been all that could be desired, and the wheat, corn and cotton crops have made wonderful headway. With continued good weather there is going to be a very satisfactory crop indeed, and the prospects for business during the summer and fall are excellent.

Movement of seasonable goods has picked up considerably during the past 10 days, and there has been a big trade on Wire Cloth, Freezers, Refrigerators, Lawn Mowers and other summer goods. The Southern houses have all made an advance on Nails and Wire, and prices are firm in all lines. Collections are satisfactory.

Boston.

BIGELOW & DOWSE COMPANY.—Yesterday (Sunday) marks the commencement of our summer weather, with a temperature of 80 degrees. The coming week will be a gala one in Boston, as it marks the annual meeting here of the National Retail Hardware Association and the meeting of the New England Hardware Dealers' Association. The prospect is for favorable weather and the various plans that have been arranged for the entertainment and care of the guests have been very carefully completed. Everything is arranged for a very arduous week, and those in charge have aimed to have every one enjoy a pleasant and profitable visit.

June is a pleasant month to visit New England, and at this season the hotels are not overcrowded. As a convention city in summer Boston offers very many attractions. The crowds who seek New England as a summer resort have been backward in coming on account of the cold weather, but everything is ready for the great rush that is now soon to come with the advent of real summer weather.

Retail dealers in some lines complain of loss of trade on account of the backward season, but there is little complaint from the Hardware trade. The jobbers surely are doing a larger business than that of past years. Their

stocks are large and very complete, and dealers find it advantageous to patronize them in place of subjecting themselves to long delays if they send their orders to the factories. Many dealers are satisfied that it is to their advantage to order light and often, and this helps the jobbers. Manufacturers' stocks are very light, and many will welcome a little let up to give them time to complete their lines.

Several months of comparatively dull trade will hardly enable them to get their stocks in normal condition. The shortage in raw material still continues and prices are very firm. Labor is paid a high wage. There is nothing in sight to warrant a lower range of prices.

Railroad freights are very much congested. Three weeks for cars from Pittsburgh to Boston is more than double the usual running time. These delays seem unaccountable and are annoying every one. Collections are very satisfactory.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade conditions during the entire month of May exceeded the volume anticipated by both the jobber and retail merchant from the fact of the unusually cold and rainy weather. Almost the entire trade naturally felt that it would affect the trade of the retail dealers, but the volume of trade was generally satisfactory for that month and exceeded the same month in 1906.

The weather in the past week has changed remarkably to much warmer weather, and the effect has been to increase the products of the farmers and trade now appears to be satisfactory to jobbing merchants, and both mail orders and salesmen's orders are sufficiently large to keep the trade busy. A more hopeful feeling now prevails regarding agricultural products.

Prices remain firm and both manufacturers and jobbers, and we feel the retailers, believe these prices are likely to continue during the year, and consequently there is no hesitation with retailers in buying, the jobbers keeping up their stock of goods in order to quickly supply orders as they arrive.

Less complaint has recently existed in regard to delivery of goods by the railroads, and from the information we can obtain there are sufficient cars to supply the demand, but they are a little short of engines sufficient to keep all the cars in use. There is every appearance, however, of an additional supply of engines within a few months. This is satisfactory to all the trade around our location.

At this writing everything appears to be going along in a satisfactory manner.

Portland, Oregon.

FAILING, HAINES & McCALMAN.—The good times and favorable conditions continue. Last year at this time we thought that it would be pretty nearly impossible for us to do much more business than we were doing at that time. To-day all legitimate lines of business in this territory are doing from 10 to 50 per cent. more business than they did 12 months ago. This increase in business is reflected in our bank clearances, which have for some time led all the larger cities of the United States in their percentage of increase over last year. This, as we have said before, is not due to real estate activity, but is a reflection of the genuine business conditions. Another thing which should be taken into account in considering this is that pretty nearly half the banks in this city do not clear through the clearing house.

In our last letter we mentioned the increase in building construction for March and April. The figures for May have not been exactly made up as yet, but they will show an increase of fully 50 per cent.

Crop conditions still continue favorable. There is no sign of the failure of any crops in any portion of the Pacific Northwest, and all our grain and fruit raisers are looking forward with pleasant anticipation to a season of plentiful crops and good prices.

One thing that perhaps does not strike the average person as productive of much business for the Hardware dealer, but which in the long run benefits him as well as all other businesses, is the tourist travel. We can report

a very gratifying increase in this in the last year, which undoubtedly has had an effect on the general prosperity of this territory. To the man who has lived in Oregon, as well as in the East, it is impossible to understand why any one after once seeing this country and experiencing the beauties of its climate, a moderate temperature both winter and summer, should ever want to experience another winter or another summer in the East. This impression is only strengthened by the telegraphic reports of the unseasonable weather in New York and New England, the crop failures, or partial failures, in the Middle West and the cloudbursts and cyclones in almost any part of the country east of the Rocky Mountains. As soon as the beauties of our climate are known we will undoubtedly have a large influx of tourists, who will make their homes here for at least a part of the year. This has already begun and promises to continue and grow rapidly. Besides the money left here by the regular tourists a very large proportion of people who first visit this country as sightseers eventually settle here, bringing with them their friends and their neighbors. We are still feeling the effects of the tourist travel which came with our Lewis and Clark Fair, and expect to feel it in an increasing degree as the present new arrivals have time to tell their relatives and friends of the beauties of the North Pacific Coast.

NOTES ON PRICES.

Wire Nails.—Notwithstanding the lateness of the season, new business is being received by the mills in good volume. Shipments continue heavy on contract specifications. Mills are showing some improvement in deliveries on back orders. There are, however, exceptions to this, information being received at this office of car lot orders placed last November and December, not a keg of which has yet been received by the purchasers. The market is firm, and for prompt shipments slight premiums are sometimes paid. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.00
Carload lots, to retail merchants.....	2.05

New York.—The volume of demand is good and shipments are being made with reasonable promptness considering the congested condition of mills. The local market is fairly well maintained with the exception that sometimes Hardware jobbers sell Nails at less than regular quotations to effect the sale of other goods. New York jobbers' quotations are: To retailers, carloads, on dock, \$2.19; less than carloads, on dock, \$2.33; small lots at store, \$2.30.

Chicago.—In spite of predictions, heretofore often ventured, that trade in Wire Nails would soon visibly decline, the demand continues with a surprising degree of vigor. There is, to be sure, a somewhat smaller volume of new business developing, but at that it is still remarkably large for this season of the year. While some improvement in deliveries is noticed, it is slight in comparison with what was naturally expected at this time. Quotations are as follows: \$2.18 in car lots to jobbers and \$2.23 in car lots to retailers, with an advance of 5 cents for less than car lots from mills.

Pittsburgh.—New demand for Wire Nails continues fairly heavy in spite of the lateness of the season, while specifications against contracts are being received very freely and shipments by the mills continue heavy. We may note that the mills are gradually catching up on back deliveries, the supply of Steel and also of cars being better now than for some time. Buyers who want prompt shipments are sometimes compelled to pay slight premiums over regular prices. Quotations are as follows, f.o.b. Pittsburgh, plus actual freight to point of delivery, 60 days, or 2 per cent. discount for cash in 10 days:

Carloads, to jobbers.....	\$2.00
Carload lots, to retail merchants.....	2.05

Cut Nails.—Back orders are being cleaned up to some extent by the mills and shipments are being made more promptly. Cars and Steel are both in better supply, and deliveries on contract orders are heavy. Prices are generally firm, but concessions of about 5 cents per keg are

made by some mills which desire business. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads to retailers, \$2.20. Iron Cut Nails at points west of and including Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

New York.—Mills are making shipments more promptly, consequently jobbers' stocks show a better assortment. While the market is generally maintained, in some instances it is affected by Nails recently purchased from mill at less than regular quotations. Jobbers of Hardware sometimes sell small lots of Nails at less than jobbers' regular quotations to secure business in other lines. New York jobbers' quotations are on the basis of \$2.30 for small lots at store.

Chicago.—Better weather for building operations and renewed activity in the car building industries is responsible for an increased demand for Cut Nails. Prices are fairly well maintained, though slight concessions by some mills are reported. Quotations are as follows: Iron Cut Nails, car lots, to jobbers, \$2.33; to retailers, \$2.38; Steel, to jobbers, in car lots, \$2.23; to retailers, \$2.28.

Pittsburgh.—The Cut Nail mills are now pretty well caught up on back orders, and consumers are getting prompter shipments than for some time. New business being placed is light and is nearly all together for small lots. The supply of Steel and of cars is showing steady improvement, and shipments by the mills on contracts are heavy. Prices are firm, but are occasionally shaded about 5 cents a keg by some mills that are looking for business. Quotations are as follows, f.o.b. Pittsburgh: Carload lots, to jobbers, \$2.05; less than carloads, to jobbers, \$2.10; less than carloads, to retailers, \$2.20. Iron Cut Nails at points west of and including Buffalo and Pittsburgh are held at 10 cents advance on Steel Cut Nails.

Barb Wire.—Buyers are specifying liberally on contract orders, and mills are catching up on back shipments. New business is light. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots.....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

Chicago.—The persistent continuance of demand is almost without precedent. It is reported by the principal interests to be still strong, and the volume of specifications and orders offered is sufficient to prevent a rapid return to normal conditions of deliveries. We quote as follows: Jobbers, Chicago, car lots, Painted, \$2.33; Galvanized, \$2.63; to retailers, car lots, Painted, \$2.38; Galvanized, \$2.68; retailers, less than car lots, Painted, \$2.50; Galvanized, \$2.80; Staples, Bright, in car lots, \$2.30; Galvanized, \$2.60; car lots, to retailers, 10 cents extra, with an additional 5 cents for less than car lots.

Pittsburgh.—Specifications against contracts continue to come in quite freely, but new tonnage being entered by the mills is light, as the spring trade is over. The mills are catching up on back deliveries, the supply of Steel and of cars being better than for some time. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Gal.
Jobbers, carload lots.....	\$2.15	\$2.45
Retailers, carload lots.....	2.20	2.50
Retailers, less than carload lots.....	2.30	2.60

Smooth Fence Wire.—Shipments on contract orders continue heavy, and mills are operating mostly on this class of business. The market is firm, and quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....	\$1.85
Retailers, carloads.....	1.90

The foregoing prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed.....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized.....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

Chicago.—In common with other Wire products the demand for Smooth Wire from manufacturers is not

abating as speedily as was anticipated. Shipments, though made with a little more promptness, are not yet equal to requirements. Quotations are as follows: In car lots, to jobbers, \$2.03, f.o.b. Chicago, and to retailers, \$2.10.

Pittsburgh.—The mills are running principally on specifications on contracts, which are coming in very freely, and shipments continue heavy. New demand has held up longer than usual owing to the continued wet weather, which prevented farmers from working in the ground but allowed them to build fences, which naturally increased consumption. The market is very firm, but there is no intimation of an early change in prices. We quote, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads.....\$1.85
Retailers, carloads.....1.90

The Skinner Chuck Company.—The Skinner Chuck Company, New Britain, Conn., announces that in view of requests received from a considerable number of the company's customers for a more liberal cash discount it has decided to make its terms of payment as follows: Net cash 30 days or 2 per cent. discount for cash within 10 days from date of invoice. The company's former terms, adopted some months since, were net 30 days with 1 per cent. for cash in 10 days. To secure the 2 per cent. discount it is absolutely necessary that the company's customers remit within the 10 day period, as it is found not only desirable but necessary to treat all customers alike in this respect.

Sash Cord.—The meeting of Sash Cord manufacturers, held last week, as reported in these columns, did not develop the advance in prices which some buyers had been led to expect. Some persons still express the belief that an upward movement may be expected in the near future as a result of the rise in cotton, declaring that manufacturers can make no profit at the present ruling figures. The general feeling, however, is that Sash Cord is high as compared with past records, and that an advance is unlikely for this reason if for no other. It is admitted that not much business has been done recently, and that manufacturers are accumulating stock.

Bolts and Nuts.—As we go to press the monthly meeting of the associated manufacturers of Bolts and Nuts is in session in this city. Well posted persons express the belief that there is likely to be no change in published quotations. While new business is not especially heavy, most manufacturers still have a supply of unfilled orders, and prices continue to be well maintained.

Screws.—The approach of the end of the half year for which prices were fixed by the Screw manufacturers has led to some inquiry among the trade as to the probable schedule for the last half year. In some quarters there seems to be a disposition to expect an advance, encouraged no doubt by some salesmen, in an effort to stimulate business. Others scout the idea and state that manufacturers will be entirely satisfied to maintain present prices.

Meat Choppers.—The Rollman Mfg. Company, Mount Joy, Pa., has advanced the retail selling prices of its two smallest sizes of Meat and Food Choppers 25 cents, making them as follows: No. 11, 75 cents; No. 12, \$1.

Rope.—The activity displayed by manufacturers in disposing of their output indicates that demand is not up to the producing capacity of the factories. The demand was comparatively light during the month of May, and hope is expressed that the present and the succeeding two months may witness greater activity. Under these conditions card prices, represented by the following quotations, are not adhered to in all instances. It is understood that "Pure Manila" Rope has been quoted at 10½ to 10½ cents. Sisal Rope is firmer than Manila products. Quotations are as follows: Pure Manila, 13 to 13½ cents; B quality, 12 to 12½ cents. Pure Sisal, 9¼ cents; No. 2 quality, 7¾ to 8 cents; No. 1 Jute, ¼ in. and up, 9 cents; No. 2 Jute, 8½ cents.

Binder Twine.—The market continues dull, as most merchants who handle Twine have probably bought some,

and may not require larger stocks to supply demand, if crop reports prove to be substantially correct. The market has not gained strength since the opening of the season, and under present conditions there are no indications of an advance in prices. These are somewhat irregular, and the following may be taken as a guide to the market: Sisal and Standard, 9 to 9½ cents; 600 ft. Manila, 12 cents; Pure Manila, 13¼ cents to 14 cents per pound, with usual discounts for large lots, central delivery.

Window Glass.—While reports regarding manufacturers' stocks are to the effect that in some sizes and quantities of Window Glass there is a decided shortage, especially in small sizes of single strength, jobbers report business as being quiet. The Eastern Window Glass Jobbers' Association recently reaffirmed prices. The Central Window Glass Jobbers' Association is reported as having withdrawn all prices, with the probability of higher ones being announced in the near future. A meeting of the Western Window Glass Jobbers' Association is scheduled to meet in Chicago on June 25. Manufacturers are looking forward hopefully to disposing of their stocks at remunerative prices. Quotations are as follows: Jobbers' quotations from jobbers' list October 1, 1903, Greater New York, 90 and 10 per cent. discount on all sizes, single and double strength. Outside of Greater New York, in the Eastern District, prices are not uniform, ranging from 90 and 5 for single and 90 and 10 per cent. discount for double, to 90 and 15 for single and 90 and 20 per cent. discount for double, according to location of territory. Minimum prices recommended by the Western Window Glass Jobbers' Association are as follows: Jobbers' quotations from jobbers' list October 1, 1903: 90 and 10 per cent. for single and 90 and 15 per cent. discount for double strength Glass.

Linseed Oil.—New business is of fair volume and shipments on contract orders are good. Nothing in the way of a large business is expected at this season. The market is firm on account of the position of Seed, owing to continued foreign demand, and crushers would probably not be willing to accept contracts for delivery late in the fall if large buyers were willing to place them at ruling prices. New York quotations are as follows, according to quantity: City Raw, 45 to 46 cents per gallon; Out of Town Raw, 44 to 45 cents per gallon. Boiled Oil is 1 cent a gallon over Raw.

Spirits Turpentine.—The demand for the week has been moderate, with prices ½-cent higher than last week. New York quotations are as follows, according to quantity: Oil Barrels, 60 to 60½ cents; Machine Made Barrels, 60½ to 61 cents per gallon.

THE NORVELL-SHAPLEIGH HARDWARE COMPANY, St. Louis, Mo., was the pioneer in making a display of Edge Tools at the conventions of the railroad master mechanics and master car builders, recently held at Atlantic City, N. J. This company displayed a full line of its Diamond Edge Tools, and particularly those which would be of use in connection with car building and mechanical work. It also showed prominently its line of Conqueror one-piece Shovels.

THE YALE & TOWNE MFG. COMPANY, 9-15 Murray street, New York, has issued a catchy 12 page booklet, illustrated, entitled "Let Us Be Your Town Crier," explaining the company's system of free advertising furnished by it to the dealer, without cost.

THE NAVY DEPARTMENT has issued notice of purchases for a variety of material to be delivered at the different navy yards. Bids will be opened July 2 and 9. Among the items of interest to the trade may be noted the following: Bolts and Nuts, Nails, Drills, Emery Cloth, Files, Rivets, Cap Screws, Taps and Dies, Pliers, Hose, Packing and Lacing and miscellaneous Hardware and Tools.

EARL G. WOOD has purchased the General Hardware, Stove, Paint and Sporting Goods stock of Walter Hickerson, Grangeville, Idaho.

THE BOSTON CONVENTIONS.

National Retail Hardware Association.—New England Hardware Dealers' Association.

THE annual convention of the National Retail Hardware Association, held jointly with the New England Hardware Dealers' Association, at Boston, this week, opened Tuesday morning under most favorable auspices. The early attendance was most satisfactory. A large number of members, delegates from many State associations, had arrived before the opening session was called to order. Few parts of the country were not represented. A special train carried an important Western delegation through from Chicago, including a majority of the National officers, which afforded an unusual opportunity for a discussion of affairs preliminary to actual convention work, as well as having delightful social



features. The New England Association had arranged a very attractive programme of entertainment, which began even before the convention opened, continuing throughout the week, and even over to the next Monday, so that the hundreds of visitors must leave the Hub with pleasant remembrances of their sojourn there.

The association brought with it a sudden and enervating rise in temperature, until the 90 mark was passed by official thermometers. But the liberal use of electric fans tempered the heat of the meeting hall and exhibition rooms, and made the open air excursions the more enjoyable.

The Hardware exhibition was large and representative, many manufacturers being present with elaborate displays of their products. The New American House, where meetings and exhibitions were held, proved satisfactory for the purpose.

Much interest is displayed as to the place of the next annual convention. Denver, St. Louis and Milwaukee are prominent in the contest, but Chicago is advocated by an influential following. Other places are mentioned, but it is taken for granted that one of the cities named will be selected, when the convention comes to that part of its deliberations.

The Opening Session

convened at 10 o'clock Tuesday morning, more than 200 members and guests being present, including a number of ladies, many of whom came on with the delegates, availing themselves of the opportunity to visit historic Boston and its delightful suburbs. President John B. Hunter of the New England Association called the meeting to order and welcomed the delegates, and introduced President Edward M. Bush, Evansville, Ind., the head of the National Association, who presided during the meetings. There was prayer by Rev. Charles A. Bidwell, Waverly, Mass., followed by the singing of "America."

Mayor John F. Fitzgerald, of Boston, addressed the meeting, welcoming the delegates and their guests to the city, and Speaker Cole, of the Massachusetts House of Representatives, extended the greetings of the Commonwealth, representing Governor Guild, who was unable to

be present. Former presidents, H. G. Cormick, Centralia, Ill., and W. P. Bogardus, Mt. Vernon, Ohio, made brief responses to the words of welcome.

Mr. Bogardus's Address.

Mr. Bogardus read a paper on "Our National Association," in part, as follows:

When over 13 years ago the fact was impressed on us that it was not good for Hardware men to stand alone, we tried association, and we found that there were things we could do when grouped together, that we could not do when standing alone.

In the minds of some the words union or association are scare words, and their imagination has been unduly exercised for fear that these organizations would assume to dictate the policy to the manufacturer and jobber as to the making and disposal of their product. But unions and associations are proper and justifiable movements provided they are managed on lines of justice and fair play for all interested.

Future Association Work.

In the years of work by the Hardware associations we have dealt largely with the catalogue house question. It was the great issue when we first organized, and it is still a very vital question. We have tried, with a reasonable amount of success, to help the manufacturer and jobber see the question from our standpoint. The appeal for fair play has been our shibboleth in the past, and we see no reason why we should not continue to use it. And while we must not forget the vital questions of the past, yet the question comes to us what, in the future, will be our mission?

I would not presume to outline the future policy of the National Retail Hardware Association, but I beg leave to submit some phases of the work as viewed from my standpoint. The question naturally comes to me, What can the National Association do to further the interests of the Hardware trade?

I think that it will be conceded that organization brings strength. That the more complete the organization the greater strength there will be. To have an organization that gathers up the forces of the several State associations into one united body gives all of them the strength of the whole. A small State association when affiliated with others has the strength of all behind it. So when questions of discrimination by manufacturer or jobber against the retailer, by going direct to the consumer, come up, there is an influence more potent than a State association can possibly be that will come in and help adjudicate the difficulty. This influence is more potent because larger.

To the Manufacturer or Jobber

who is overly anxious to enlarge his trade by selling indiscriminately to the consumer and to his customers' customers without giving adequate protection to those who are his constant patrons over those who possibly buy but one bill in a life time, the fact that there is an organization that reaches over the country, and that will have knowledge of his methods and will spread the facts to the Hardware trade of many States, has an influence that is not easily measured, but very plainly seen.

And yet such a power is dangerous and a menace to trade if not wisely used.

We Have Been Fortunate

in having wise counselors so far, but the danger is with us, and we need to exercise the utmost caution in officering our several State associations. But we hear from the merchant conscious of his success and proud of his achievements that there is no need of associations. He has had success. Why cannot others do as he has done? Such a position is not a fair one. Others may not have had his opportunities, may not have had his ability.

We Organize to Help Each Other.

If we were all strong we might not need help. It is the weak ones that need help and we that are strong have a duty to them that we may not ignore. To gather up the needs of the State associations; to keep in close touch with their work; to be ready at all times to lend a helping hand, and to give counsel and advice and admonition when needed. These are some of the things

that the National Association can do to further the interests of the Hardware trade.

Again, what can the National Association do to conserve the interests of the State associations, and help them to increase their membership?

The National Association Is a Connecting Link

between the retailer, jobber and manufacturer through its membership in the Joint Committee. There questions that affect both retailer and jobber can be discussed and conclusions secured that are well nigh impossible under ordinary circumstances. Through this committee the ear of both jobber and manufacturer has been reached and we have been able to present our point of view and appeal to their sense of justice and fair play. And our appeal has not been in vain.

One of the Great Advantages

the national organization has to offer the State associations is its size and its facilities for the spreading of information. The affiliated associations as organized into the national number nearly 10,000 members. That membership enables the national to support a periodical that comes to all the members every month. Within its pages are gathered many things that are of interest and help to the retailer. Through its columns matters of information are sent broadcast over the country.

As long as we are fair and just our strength lies in publicity. We have a powerful ally in the fact that we have a monthly that goes to nearly every Hardware man in the country. Through its columns we have access to other Hardware men and their ideas. No one will try to do things that are hurtful to the trade with a knowledge that his methods will be subject to the limelight of investigation. It is not a cure for evil doing but a preventive.

We Cannot Live Together In Peace

unless we recognize each other's rights. We cannot recognize other's rights unless we give up some of our own. That is civilization, and the organization that attempts to leave every member entirely free and independent of all others is bound to be a failure. We are mutually dependent on each other. We need the strength of the strong, the caution of the timid and the perseverance of the faithful. With these advantages the national has something to offer the State associations that will help them to increase their membership. And so we come to the question

What Gain Is There to a Hardware Man to Belong to an Association?

This is a question that it should be needless to ask, but it is constantly asked, and so we give it consideration. At the gathering of the State associations we have found many manufacturers who have brought samples of their wares to exhibit them, feeling that in that way they could have a larger clientele in a shorter time than in any other way. This idea has grown until the exhibitions are becoming a feature of the annual conventions that is very prominent.

The information that the Hardwareman can secure, at these meetings at a nominal cost, that would under other circumstances cost him months of time and a large expenditure of money—much more than most of us could afford to spare—amply justifies the time and expense for attending the State conventions. In these days of sharp competition we need to study the methods of the more successful. Where can it better be done than

In Face to Face Talk

with men who have made a success of their business? Men learn by contact with each other. Ambitions are stimulated by coming in touch with those who have grown. To be satisfied, to remain where you are, is to shrivel up and die. "Onward and upward" should be our motto. If we content ourselves to simply hand out goods that are called for we have little to look forward to. But if we not only hand out the goods called for, but seek to teach our customers the valuable qualities of other goods, and so stimulate them to acquire more things that will add to their comfort, we add to the sum of human happiness, and increase the output of the manufactured articles.

To Be Simply a Shopkeeper

is unworthy the ambition of any man present. But to be a merchant; to understand his business; to grasp its possibilities; to understand the goods that he offers for sale; to know their weak and strong points; to be able to speak intelligently of their uses and value is a combination that is worthy the efforts of any of us. We cannot get this measure of enthusiasm if we stay at home. Our eyes will not see the boundless opportunities for growth if we linger in the valley. We will not gain the knowledge from our brothers if we never meet them.

Pure Goods Crusade.

There is still another thing our organization can do. A public opinion created by the vigorous protest of the Hardwaremen of the Northwest has made it unlawful to longer sell a can filled with mud, soapy water and a little oil as a first-class paint, notwithstanding it is pronounced by the maker as superior to any paint made, and guaranteed to stand five years under any condition. To stand for pure goods and combinations that the manufacturers are not ashamed to put their names on is to stand for what is right. The influence of such a large association as the National, covering so much territory, brings with it a responsibility that we must face. And it brings to us an opportunity to wield an influence for good that we should not fail to use. The goods we sell are necessities. We do not cater to the needless wants of the community. But in every home that is made, every house that is built, every factory that is erected, the Hardwareman has a part. And so we are justified in taking a pride in our business, and in having an ambition for our Hardware associations, that they may inspire in the minds of their members a desire to excel in knowledge, in salesmanship, and in everything that goes to make capable and honest merchants.

Other Addresses.

Several of the visiting manufacturers and jobbers spoke briefly, including N. A. Gladding, E. C. Atkins & Co., Indianapolis; F. J. Semple, Simmons Hardware Company, St. Louis, and S. Norvell, Norvell-Shapleigh Hardware Company, St. Louis, and R. R. Williams, *The Iron Age*. Mrs. Charles H. Williams addressed the convention, thanking the association for its courtesy in opening the session to the ladies.

President Bush's Annual Address.

Tuesday afternoon was given up to a long executive session. The address of President Bush was a conspicuous feature of the session. He said in part:

Address of E. M. Bush.

An eventful year and a quarter for our nation has passed since our Chicago meeting. The man of the "square deal" has had a potential influence upon national legislation, which has been of such character that not only we as merchants, but practically all members of our commonwealth must profit thereby. It quickens the blood of every true American and patriot to witness the demand arising from city and hamlet, from every section of our broad land, for the adoption of the "square deal," or, in other words, for "a reign of righteousness," and for the elimination of the greed, graft and gouging charged and proven to have existed among some high in esteem and influence. If among them, where does it not exist? is the natural inquiry. But the demand of the day is "investigate, eliminate—a square deal for all"—and what the American people demand they get.

While our organization is not one of law making, our vocation brings us into daily contact with those in every walk of life, and doubtless you have been impressed as have I with the expressions heard from laborer, artisan, maid and actress, farmer, merchant and professional men—expressions of admiration for the courage, honesty of purpose and championship of the people's cause by those high in State and national influence and authority; all of which quickens, as I have said, the life blood of every true patriot.

The Great Public Questions

which have been legislated upon in the past few months have not been fully solved by what has been accomplished. Much still remains to be done, while others of momentous import are being agitated and discussed before coming up for legislation in the near future, but the tendency of the time is for a betterment of present unsavory, unwholesome, unfair and therefore un-American conditions.

The Most Sane and Wholesome Suggestions

of solution for many of the trust problems coming under my observation among the flood with which we are inundated on this question were by the Hon. Peter S. Grosscup, judge of the United States Circuit Court of Appeals of Chicago and published in the *Outlook* of January 12, last.

Let us hope that in the coming crucial legislation there will be no "brain storms" among those clothed with power to legislate. Let them weigh all things well, nor be led through public clamor into laws—not just and right for both corporations and the people—and therefore most calamitous to our nation.

Hardware Business an Art if Not a Science.

We hear upon every hand of advance in arts and sciences. Has it occurred to you that the retail Hardware

business, properly conducted, is certainly an art, if not a science? Securing and teaching efficient salesmanship, determining the most profitable and effective manner in which to advertise from the multiplicity of ways and plans offered you, properly displaying goods, securing order and neatness in store arrangement, promptness and affability in employees, meeting the new conditions evolved by free rural mail delivery, country telephones, interurban trolley cars, mail order and catalogue house competition, decreasing profits, increased expense, buying of futures, financing your business, collections, fluctuating markets, State and national Hardware associations, mutual fire insurance—all are calculated to broaden and deepen one's capacity and judgment, and with all this should come a growth of business ethics among retailers.

Instead of Enmity and Distrust Toward a Competitor,

why not one of brotherhood and confidence? Instead of cutting the price of a competitor, why not think "if he gets such a price, why cannot I, by having a more attractive store, a better display of goods, superior salesmanship and affability, secure as good or better?" Why be an underground railroad to secure goods for a paltry 5 per cent. for some other merchant or mail order house, who, because of some violation of an agreement or of a broken rule, cannot buy direct, thus enabling the "cut off the list" firm, by securing these goods through you, to become a pirate in the trade and demoralize prices in any locality, be it limited or extensive. Some may say this is business, but let this association stamp such business as disreputable.

Result of Agitation.

The catalogue of one of the largest mail order houses will appear hereafter with Hardware pages omitted. A separate catalogue of this line will be issued, but not mailed except upon special request. I am also reliably informed that their line of Hardware will be greatly reduced, being restricted hereafter to about two grades and kinds. The various goods they carry and the prices quoted upon these goods for the most part afford a better profit for the retailer who is brought into competition with them. I judge this new policy to be the result of the combined and various efforts of the State associations, the Joint Committee, the jobbers and those manufacturers who are in sympathy with our movement. However, we must not be content with the success thus gained, but with renewed determination keep up the fight. The permanency and value of our accomplishments will be determined when we enter our next period of hard times, for we know that it was during the hard times following the panic of 1893 that the cataloguers made such strides. It behooves us to perfect our organization and become schooled in working and standing together, that we may battle against future expansion of mail order houses in times of depression.

The Key of the Situation

—manufacturers selling the cataloguers, especially the standard brand and patented and controlled articles—lies without question in the jobbers' hands. While we cheerfully and gratefully acknowledge that their efforts have been of vast assistance, still we are prompted to ask, "Have they as individual firms rendered all the aid they could?" I fear not, for who doubts, had every jobber been for the past few years persistent in his request to the manufacturer that this evil cease, who doubts that this Banquo's ghost would have been laid long ago. The jobbers have a strong organization which we commend and approve; retailers have realized and felt its power and influence in various ways, especially in demanding and securing the jobber's differentials. It appears to me we, in our turn, should now demand from them our differential—which is the elimination of unfair catalogue competition. Business ethics demand that the jobber, while enjoying the differential and controlled prices to retailers which assure his profits, should not complacently witness the catalogue market these same wares in direct competition with the retailer at prices unremunerative to him.

In How Many Instances Are the Cataloguer's Prices

as low as the prices asked the retailer by the jobber, and when the retailer in his effort to compete with the catalogue goes direct to the manufacturer, he often finds the manufacturer's prices even higher than those of the jobber? Such conditions, I say, are not ethical, and unless made so the retailer, for his very life's sake, will of necessity be compelled to solve this problem for himself.

There are now mutterings in our ranks, and some experiments in collective buying being attempted. We believe the logical and most convenient way of distributing goods, especially with limited capital, is that now in vogue—manufacturer, jobber, retailer, provided, the cataloguers' assassin competition is eliminated. What I have said in this connection do not misconstrue and

misunderstand. I am not throwing down the gauntlet to our friends, the jobber. I say this for our mutual good, hoping it may cause the jobber to renew his efforts to stop the unfair competition of the cataloguers, demoralizing to the retailers and detrimental to his own business interests. Let us here to-day urge the jobber to renew his efforts in our behalf and in his own.

Trespassing on Retailer's Territory.

That old grievance of some manufacturers and jobbers trespassing upon the territory of the retailer has not been entirely eliminated. Though there is not as much general complaint as formerly, from some sections of the country comes great complaint, and at a later session of this convention the subject of "Trade Boundaries" will be discussed by one familiar with this situation.

"We Sell to Dealers Only."

You have all noted upon the letter and bill heads of many prominent firms: "We sell to dealers only." The word "dealers" in the hands of some firms is an elastic one as to meaning. Let us as an association, vigorously protest against its being stretched to include factories, planing mills, contractors, blacksmiths and pawnbrokers. Again the value and worth of our organization will be tested in this particular, when times of depression come, when there will come to manufacturer and jobber, the temptation to market their wares wherever customers may be found.

Domestic Parcels Post

is agitated, endorsed and financed by those interested in drawing trade long distances, and being thus enabled to deliver goods at the door of their far away customer at no greater cost than he who lives a dozen miles away, gaining thereby a rate discrimination, denied and unlawful upon freight shipments and entailing great loss to the Government, which loss must be borne in full proportion by him who believes in upholding home trade and industries.

Advocates of this measure although defeated again at the last session of Congress, seem not at all discouraged, having recently made defiant prophecies of future success. Therefore, it behooves us as opponents of this measure, to be even more watchful of their movements, and ever ready to meet them with united and prompt opposition.

Publicity Advertising.

I view with deep concern for retail interests some of the recent developments in trade conditions. Retailers may not all agree, as I know some manufacturers will not, with what I have to say. What has come to be known as "publicity advertising" is a subject worthy of your profound consideration and exhaustive discussion at this meeting. I deem it of such importance that I have assigned the subject to F. R. Currie, of Iowa, for thorough presentation to you. This manner of advertising will probably continue until its advantages or disadvantages are proven.

Restricted Selling Prices.

Another matter requiring your consideration for approval or disapproval is the resale or restricted minimum selling price. Permit me to quote from my address to this body last year at Chicago in discussing this matter, when I said, "If due regard is given to the profits of the retailer and without injustice to the customer, the effort should be encouraged." The question for you to decide is, Has due regard been given to your profits? In many instances, emphatically no, for the established minimum retail price quickly becomes the general and almost universally the only price asked, and since this has proved to be the state of affairs it becomes a necessity for the manufacturer either to reduce the cost to you or advance the minimum selling price. No restricted resale prices can be satisfactory where costs change, unless minimum resale prices change also.

I believe this association should earnestly protest against a published retail price, unless such published price afford a legitimate profit under all conditions, and particularly at greatest distance from source of supply, or the manufacturers make a delivered price the same at every point in the territory where their goods are sold.

Retailers' Difficulties.

I shall briefly call to your attention as deserving your serious consideration, and which must enter into your plans for the successful conduct of your business, difficulties confronting the retailer in his purchase and sale of merchandise, which for convenience I divide into four classes.

In the first of the four classes of merchandise which I have mentioned are those goods with controlled cost prices; those with controlled retail prices, where the retailer pays out of his profits for their being popularized by publicity advertising, being forced to accept a less

profit than he realizes upon other goods of equal intrinsic value; those old and established brands of tools, &c., many of which we are forced to sell at staple prices.

In the second class are private brands of jobbers, who control their prices and upon which there is no competition in buying.

In the third class, goods wherein no comparison of price can be made, because of difference in sizes, kinds, numbers and finishes, which makes it difficult to determine their relative value.

The fourth class consists of the staples, such as Nails, Wire, Loaded Shells, Bolts, Screws, &c., which are sold at less than cost when expense of doing business is taken into account.

5 and 10 Cent Goods.

A vexatious problem to retailers is what I might term the outrageous advance made upon many of the 5 and 10 cent articles carried in stock. This may seem a small matter—it certainly concerns small things—but I consider it an outrage that for these small articles which form a goodly percentage of your every day sales, for these small articles formerly purchased at 25 to 60 cents per dozen, we now are compelled to pay 50 cents to \$1 a dozen, and retail still at 5 and 10 cents each. Just as much time is spent in handling and selling every one of these small articles and absolutely no appreciable profit.

These are great difficulties to combat in the purchase of merchandise. You doubtless agree with me that in good buying lies the chief profit of business. The old adage runs: "Goods well bought are half sold."

When in addition to these problems of purchase is added the mail order house catalogue, which in the hands of your customer is a bulletin upon every article you carry in stock, then, in the famous words of a famous Congressman, "Where are we at?"

These conditions open wide these two questions for discussion:

1. Which is best for the retailer, a restricted price or open markets in his purchase of goods?
2. Have retailers as a class reaped their proportion of the prosperity of the past few years? Is it all the retailer's fault?

Legislative Committee Recommended

Here is something for us to do. Let us as an organization make a united effort to prevent by timely action the formation of trusts or agreements in our line of business that would be detrimental to our own or the public's interest, and avoid the necessity of turning on the calcium light of publicity. I recommend that the Constitution and By-Laws Committee provide for the appointment of a Legislative Committee, one branch of whose duties shall be to investigate any such cases as may be suspected to exist now, or may exist hereafter.

Judge Carland's decision in the South Dakota cases gives clear sailing to retailers to defend themselves through a bureau of information. I believe, however, that the manufacturers of standard goods are rapidly coming to agree with our views and desires regarding selling to cataloguers. Many have reached these conclusions after a thorough understanding of the situation, and now see that such action upon their part is short sighted and an injustice to their largest and best distributors. To be best distributors, for our own success as well as theirs, we must dispose of their goods in such quantities by improved methods and salesmanship as shall make them content to confine their sales entirely to legitimate channels.

We Can Learn the Best Methods

by reading the trade press and your own organ, *The Hardware Bulletin*. All these papers contain valuable information for every retailer, and each one is vieing with the other to impart the best and newest ideas. Many firms subscribe for all the Hardware papers, have them read as much as possible by their salesmen, and report good results.

Secretary Corey.

Your efficient secretary requires no word of praise or commendation from me. You have already proved his financiering ability, his most excellent judgment, fidelity to duty, and the deep interest which he takes in everything which conduces to the growth and success of your association; and the greater part of whatever growth and success has come to our association and association organ during the past year is the result of his good judgment and indefatigable labor.

The Marvelous Growth of This Association,

with its constantly increasing lines of labor, necessitates, to my mind, some changes in its original constitution and by-laws, which will make it a stronger and better equipped body for effectual work. About to hand over the keys of office, perhaps I may suggest to you that the

busy business man of to-day who can give more than one year to the office of president of this association without too great sacrifice of his own business interests will soon be hard to find, for few retailers have their business so strongly organized as to be able for long to withhold from it their personal and constant supervision. I advance the suggestion to you that it is unjust to any man who gives to our service the time consumed by the demands of his office to ask of him more than one year of such service. An honor it is of which any man may well be proud, but its duties are onerous, requiring thought and time and strength, which must be taken from his business. Let us not ask more than he can with justice to himself give us. I ask the proper committee to bring before you for consideration some plan whereby our work may be most effectually done without too great demand upon the time of our president.

It has been my intention to touch briefly a few subjects and topics in which I believe you to be interested, relying upon later discussions to develop them, and others that I know will come before you. I wish only to say further, few organizations, none in retail merchandizing, have had such marvelous growth, few wield such potential influence as does the organization represented here to-day. Fortunate have we been that strife and discord have found no lodgment in our ranks. It is this harmony which has made us what we are—the long pull, the strong pull, the pull all together. In unity is strength, as we of *E pluribus unum* believe, and that day would be deplorable, indeed, which should find factions in our midst. Let us all in the future, as in the past, submerge any mere personal feeling or grievance or desire for change and radicalism in earnest effort for the good of the greatest number, the preservation of the unity and harmony of this grand association, of which we may well be proud.

Mr. Corey's Report.

The report of Secretary M. L. Corey, Argos, Ind., demonstrated that the association is in a most prosperous condition in every respect. The membership has increased greatly, about 2225 merchants having been added during the year, bringing the total up to more than 9700. Secretary Corey has made careful estimate of what this membership means in capital invested and gross business transacted. Close to \$100,000,000 is invested in the business of the members, whose gross sales amount to about \$250,000,000 a year.

First Vice-President S. R. Miles, Mason City, Iowa, made the report of the Joint Committee. The treasurer's report showed that the association is in a most substantial financial condition.

Publicity Advertising.

F. R. Currie, Mason City, Iowa, gave a most interesting address on "Publicity Advertising," in which he said:

It is not the purpose of this paper to antagonize the American manufacturer or the American press, but it is to open a discussion and to encourage personal views from the dealers represented that shall be a guide in the future policy of the manufacturer in marketing his goods and for the dealer in selecting his stock.

We are a part of a nation whose people are noted for their push, enterprise and their ability to make and change conditions. It is unnecessary for me to say here in the manufacturing center of our Commonwealth that the American manufacturer is the most pushing and daring of all manufacturers, and that Yankee invention is world famed for its cleverness and ability to meet and make conditions.

Reading Matter by the Ton.

This convention is made up of thinking men. You have all been appalled at the tons of reading matter that come regularly from the American press. If I did not come from a State with big farms I would dare to assume that enough printed paper rolls regularly from the American printing press to blanket the United States each month. None of us claims to read one-fourth of what comes into our homes, and half the dealers here do not read half of what comes to their desks. Why? We can't find the time.

The American Publisher.

If the American manufacturer has a competitor in daring, push and enterprise it is the American publisher. These two have created a new profession in the person of the "professional" advertiser, and when we see the great strides that have been made in very recent years in these schools of advertising, and in the practice of it, we are convinced that there is something ahead, and we

are wondering if the signal is profit or loss for the retail merchant. Within the last few years a few items kindred to the Hardware line and a large number of items from other lines have suddenly been launched and established with the American people, and this fact has whetted the appetite of the manufacturer and the publisher, has made them more daring. It seems almost as if the manufacturer and the sales companies

Have Gone Wild on the Subject.

and the man who seeks to organize a new enterprise or to launch a new product first ascertains how much he can appropriate for advertising, and is perhaps more careful in selecting his manager of sales or his advertising manager than the general superintendent or foreman of his factory. And I could name a firm of this kind that needs to give additional attention to the perfecting of its product if it wishes to continue to reap profit from its commodity—they have spent so much in advertising—and maybe you know of several. This feature has caused the American retailer to "sit up and take notice," and they fear that they are

Buying Advertising Rather Than Merchandise

and paying too much for it. In fact, the majority of the successful solicitors to-day on strong lines, after giving the merchant a few pointers as to quality and efficiency of the product, will spend a great amount of time on the advertising and the aids that the manufacturer is putting forth to help the dealer sell the goods.

Not that the retail dealer is unwilling to pay for the advertising if he can get it for what it is worth, but he don't want to pay a long price for it. If a manufacturer spends five per cent advertising a product, does the retailer want to pay 15, 20 or 25 per cent. for it? Hardly. And the feeling that is beginning to show itself among the retail dealers argues this way, and seems to have good evidence to back it.

We learn that an article on which a vast amount of money has been spent in advertising in this country is retailed across the water for 40 per cent. of our restricted retail price. Yes, it is retailed there at 80 per cent. of the American jobbers' cost. Is anything added for publicity advertising?

A certain manufacturing concern bought up the business and patterns of an article and jumped the retailers' cost 40 per cent. when it began its publicity campaign. The dealer who gave me these facts has changed his line. Wouldn't you?

Where Magazine Advertising Is Justified.

As I have considered this matter and have looked into a few of the items that have been suddenly launched safely and surely upon the American people by this strong publicity campaign I have found three classes of manufacturers who were justified in a national publicity advertising campaign.

First, a manufacturer who makes a radical change in the making of an old thing for the same old purpose.

Second, a manufacturer who discovers a great many new uses for an old thing, and changes his style of package.

Third, a manufacturer who launches an entirely new thing.

I believe if you can recall lines which I refer to, you will believe me.

Now let us take the side of the argument for standard goods. Let's use the item of a Claw Hammer to illustrate our point. I don't believe that any manufacturer could compel the American retail Hardware dealer to put in his line of Claw Hammers simply because he had advertised them in the *Ladies' Home Journal*, or in any other journal read by the public at large. He simply couldn't.

But if this same man should invent a Claw Hammer with the efficiency of the regular pattern that could be carried in the vest pocket or was made collapsible, or something of this kind, he would be justified in a strong publicity campaign to get this before the American people, for this is a radical change in the construction of an old thing.

Or supposing some very ingenious man or woman should invent a machine that after the family had finished their dinner would automatically, silently and quickly gather up the dishes, clear the table, wash the dishes and put them away. This would be an item that would be new and a publicity campaign would necessarily be needed to get Hardwaremen to stock an item like this.

The Great Danger That Confronts Us

is that the manufacturers will go advertising crazy and seek to force all their wares on the American people, and in this add too much to the dealer's costs, and thus very materially interfere with his profit account. We have

all learned that advertising costs money. It costs lots of it, barrels and barrels of money.

Food Choppers.

Let us take another view. Take a very common item in the Hardware store of to-day, namely, Food Choppers. I believe every dealer in this convention to-day will say that he practically pays no attention as to how much publicity advertising is given to Food Choppers. He buys a Food Chopper he can make money on. I believe every dealer here will say that when a customer comes to his store he will sell him or her the Food Chopper that he has in stock. If the manufacturer who advertises a good Food Chopper wants \$10 a dozen for them, and if he can buy a Food Chopper made by a high grade manufacturing concern that has proven satisfactory when used in his own kitchen at \$9 a dozen he will not pay the \$1 extra for the advertising on an item as staple or common as a Food Chopper is to-day.

By this Food Chopper illustration I mean that I believe that if it costs \$1 a dozen to advertise Food Choppers, any established firm with a reputation for making good tools, guns, or anything else could go in and clean up a big bunch of business easily by deducting the cost of the other fellow's advertising from the selling price of his Chopper. For the Food Chopper to-day is established in the American household. Understand me, a new and unknown firm could not do this, but an old established firm could, and I have seen the same thing tried on other lines.

I corresponded with a few retail dealers on this subject and am sorry that I could not have had this subject in time to have corresponded with more. But several of the dealers cited the case that as regards a certain item upon which a great amount of money has been spent in advertising they are able to buy for 20 to 25 per cent. less money an item that in their judgment is as good if not better, and which they can sell for the same price as the well advertised item, and sell as many of them.

Inquiries Referred to Merchants.

In letters to me several dealers have spoken of the fact that the names given them to follow up sales have not resulted as the manufacturers intended. In fact as a rule there were no results. This is almost the uniform experience. I believe the only man who has spoken to me on this question who claims to have gotten results is a man who handles Incubators, and he stated that this one item had proven quite satisfactory. That is, when names were referred to him he had made quite a few sales by following the matter up.

"Substituting" Goods.

Another question of grave importance confronts us in publicity advertising. You will notice practically every standard magazine has devoted considerable space in an editorial way advising the reader to insist that his dealer furnish him the exact goods advertised, cautioning them against accepting substitutes, claiming that the one and only reason that a dealer has in substituting is because the substituted article costs him less and he can make more money, and impressing upon the reader that the advertised article alone has merit.

I believe that if you will take the general Hardware catalogues of to-day you will find a big percentage of the standard, reliable lines which are found in the Hardware stores are dependable, are reasonably priced and give satisfaction, and at the same time are made by firms which do not spend a lot of money in publicity advertising.

We must not confuse publicity advertising with trade advertising. A manufacturer must advertise to the dealer. This is not publicity advertising, but is trade advertising pure and simple.

If we allow our magazines to increase their pages of editorials warning the people to beware of the merchants' substitutions, will we not encourage mail order business, as most of the advertisers state "if your dealer will not furnish you we will forward direct." This is a phase that also must be looked into. I believe to-day that the manufacturer should use great discretionary power in selecting lines upon which he spends a vast amount of money in advertising.

It is far from my thought to attempt to kill, or even scare, the goose that lays the golden egg. I realize great material aid has been brought to the retail dealer because some items have been well advertised in the past. But we must endeavor to prevent this being done on all items.

Mutual Insurance.

The report of the Committee on Insurance showed that the Hardware mutual insurance companies carry policies aggregating more than \$12,000,000, a very fair percentage of the total capital invested, as estimated by Secretary Corey, especially when it is remembered that the companies are young.

Wednesday Morning.*(By Telegraph.)*

The Wednesday morning session of the National Association was devoted to committee meetings and other routine business. The committee appointed to consider the matter will recommend Milwaukee for the next annual convention.

The New England Hardware Dealers' Association held its annual meeting and elected the following officers:

PRESIDENT, F. Alexander Chandler, Boston.

FIRST VICE-PRESIDENT, S. H. Thompson, Lowell.

SECOND VICE-PRESIDENT, Frank E. Pierson, Pittsfield, Mass.

SECRETARY, Charles L. Underhill, Somerville, Mass.

TREASURER, Henry M. Sanders, Boston.

DIRECTORS: Bion C. Pierce, Taunton; C. M. Nichols, Boston; E. L. Davis, Boston; D. Fletcher Barber, Boston; J. DeF. Phelps, Windsor Locks, Conn.; S. E. Pope, Jeffersonville, Vt.

Reports showed an increase in membership in the year from 104 to 200. The condition of the association is prosperous.

NEW ENGLAND IRON AND HARDWARE ASSOCIATION.

THE annual meeting of the New England Iron and Hardware Association was held at Young's Hotel, Boston, Tuesday evening, June 18, President Roswell M. Boutwell in the chair. The reports of the committees showed that the association has had a satisfactory year and that the work of the various committees has been on the whole well done. There has been a gratifying in-



ROSWELL M. BOUTWELL, President.

crease in membership, and the work of the collection department has been brought to a higher state of efficiency. President Boutwell was accorded the honor of a unanimous re-election, as also were Edward A. Loomis, vice-president, and Charles H. Breck, treasurer. George J. Mulhall, manager and assistant treasurer, was elected clerk. The following directors were chosen: Chas. F. Bragg, Chas. W. Sabin, Roswell M. Boutwell, E. A. Loomis, A. B. Marble, W. A. Hopkins, Allan J. Chase, E. E. Farnham, Arthur C. Harvey, E. L. Richards, Oscar A. Shepard. The business of the evening, as usual, was preceded by an informal reception and dinner.

John T. Boyd, who has served the association faithfully and well for 10 years past, declined re-election on account of pressure of other business. Mr. Boyd is Boston manager of Yale & Towne Mfg. Company, and his retirement from the office of clerk was sincerely regretted.

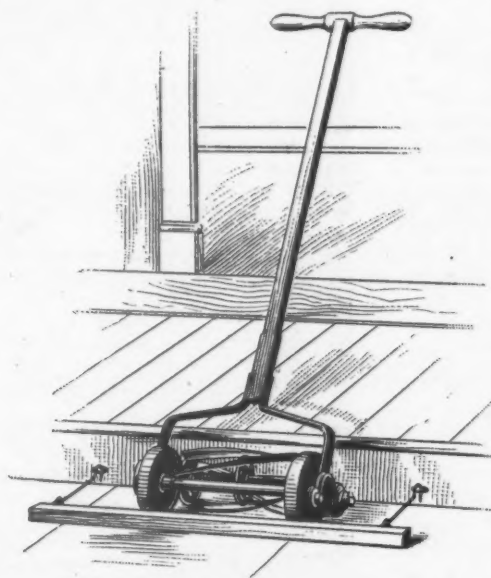
President Boutwell was highly complimented by several speakers on the efficiency of his administration and

the generally good work begun and now to be further carried along during the coming year.

This association was incorporated in 1894, and maintains permanent headquarters at 88 Broad street, Boston, in charge of George J. Mulhall and assistants.

HOLDING LAWN MOWERS.

AN effective and simple way to prevent Lawn Mowers rolling away, when displayed for sale on the sidewalk or in the store, is shown in the accompanying illustration. A strip of wood about 1½ in. square, with a hook near each end, is sufficient for this purpose. The wire hooks, nearly as long as the diameter of the Mower wheels, are attached by screw eyes to the strip and



Holding Lawn Mowers.

hooked into screw eyes in a board back of the Mower. The board holds the handles of the Mowers up and out of the way. It is obvious that as many Mowers can be displayed in this manner as desired, if the front strip and back board are made of proportionate length. The illustration represents the Mower on the sidewalk, with the store platform back of it.

THE firms of Hatchett-DaCamara Hardware Company and M. E. Gruber, both of West Palm Beach, Fla., were on May 1 incorporated as the Lake Worth Mercantile Company, with authorized capital stock of \$100,000, of which \$75,000 has been paid in. The company will conduct a jobbing and retail business along the Florida East Coast. The lines carried by the company comprise Shelf and Heavy Hardware, Sash and Doors, Paints, Oils and Glass, Tin and Enameled Ware, Crockery and Glassware, Furniture, Wagons, Agricultural Implements and Harness. The building formerly occupied by M. E. Gruber is being remodeled and enlarged, changing it from brick veneer to solid concrete, with 16-in. walls. It will be 50 x 150 ft., two stories, with a new front of plate glass and iron. It will be practically fireproof and it is hoped will give ample room to show to advantage the large stock carried. The company has recently erected, on a spur of the railroad, a short distance from its store, an iron warehouse, 50 x 120 ft., with cement floor, in which to store surplus stock of heavy goods, which will enable it to handle carload freights to advantage.

THE PICKETT HARDWARE COMPANY, wholesale and retail, 414-416 Pennsylvania avenue, Warren, Pa., has enlarged its establishment by taking in the store at No. 412, which will increase its facilities about one-half. The addition will be used to accommodate some of the lines now carried by the company and for new lines which it is expecting to take up.

Hardware Window Display

ELEVENTH ARTICLE.

ALL store windows may be greatly improved for display purposes by the skillful use of mirrors. This fact is now universally recognized by retail merchants who attempt to utilize the advertising and business getting possibilities of their store fronts. Certainly the ma-

window. Those in the background slide on floor rail, the forward one having a nickel frame on the inner end to conceal the overlap. The partition mirror may be used or not as desired, according to whether or not the whole window is to be devoted to one line of goods.

Articles common enough in themselves and little calculated to attract attention immediately become objects of interest if seen in an unusual place; thus it may well be imagined that a man's evening coat and the elaborate

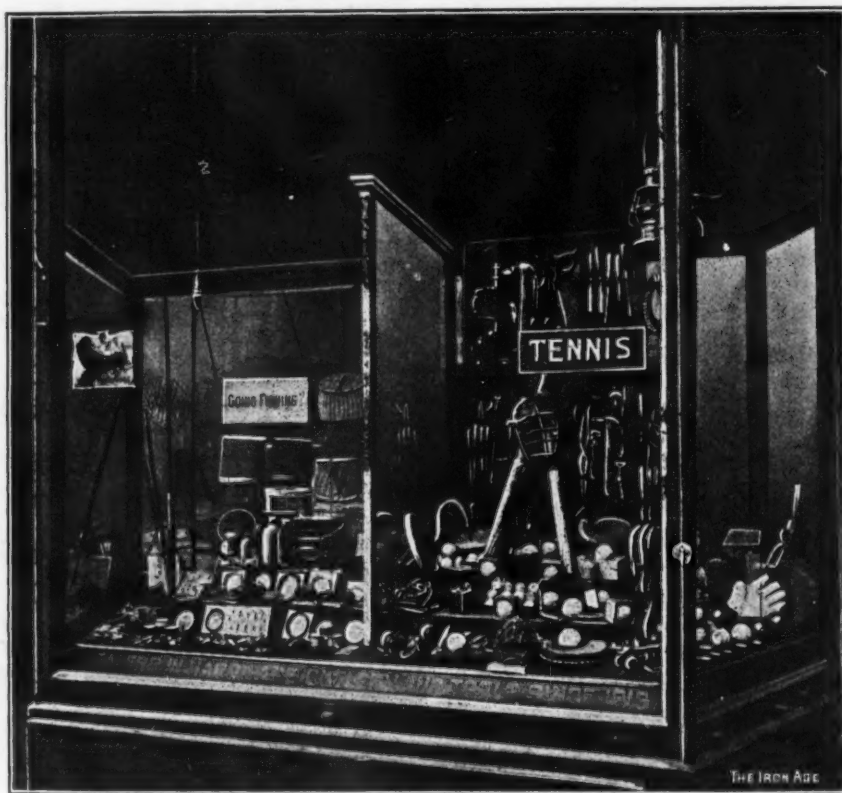


Fig. 34.—Window Display Improved by Mirrors.

jority use mirrors to a greater or less extent, and the question is how to arrange and dispose them to best advantage. In small windows especially mirrors in the rear and at the sides are effective, not only in increasing the apparent size of the space, but also in multiplying by reflection the number of articles exhibited. They also go a

skirt of a lady's evening costume would attract considerable attention in a Hardware store window. This idea is the basis of a display of Folding Garment Hangers shown in Fig. 36, and the catchy sign posted in connection with the display would be pretty

Objects of Interest.

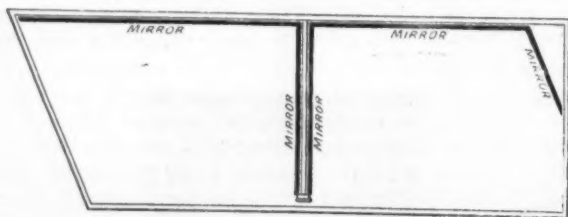


Fig. 35.—Arrangement of Mirrors in Fig. 34.

long way toward preventing dark shadows, thus enabling observers to see goods to the best advantage.

An Example of Effective Arrangement.

We are able to reproduce in Fig. 34 the window of the Forty-second street store of White, Van Glahn & Co., New York, which affords an excellent example of the use of mirrors. As will be seen from the cut, the rear of the window is not only completely inclosed by the glass, but it is also cleverly divided by a mirror partition, so that the window is adapted to two different displays. On one side of the glass is an exhibit of Fishing Tackle and Anglers' Accessories, while on the other side are seen Baseball and Tennis Goods, together with some sample boards of Tools in the background. It will readily be understood that without the mirrors the two halves of the window would look very small, and the displays which they contain would seem cramped and meager, but with the added space lent by reflection both displays are effective. In Fig. 35 is shown a plan of the mirrors as used in this



Fig. 36.—Not Suggestive of Hardware.

sure to be read with amused interest by the majority of passers-by. Obviously it would not be necessary to de-

vote a whole window to Garment Hangers to carry out this idea, but it is a pretty safe rule that the greater the number of articles shown the more telling the display.

Many articles in the Hardware store are adapted to pleasing arrangement without the assistance of stands,

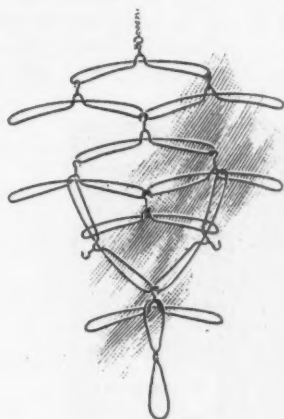


Fig. 37.—Coat Hangers Neatly Arranged.

fixtures or accessories of any kind. Coat Hangers just referred to in connection with Fig. 36 are one of these articles, and may be arranged in a very graceful and ornamental way by hanging them together in a group. Fig. 37 affords a suggestion of how this can be done.

(To be continued.)

J. C. MOORE, Saltsburg, Pa., has been succeeded by the J. C. Moore Hardware & Supply Company. Mr. Moore started in business in 1875, and as a result of his energy and industry has built up a large business. In the new company Mr. Moore has associated with him as equal partners J. F. Piper, L. R. Moore and F. E. Shupe, young men who have been identified with the business

for some years. The lines covered by the company include Hardware, Stoves and House Furnishing Goods, China and Queensware, Jewelry and Silverware, Harness, Trunks, &c., Carpet and Wall Paper, Plumbing, Heating and Roofing.

ROBERT M. BALL, Muncie Ind., manufacturer of washing machines, has sold his plant to Nathan J. Leisure, president of the First National Bank, Elwood, Ind.

THE LUCAS PUMP COMPANY, Dayton, Ohio, has been incorporated with a capital of \$30,000. The company has a plant at Greenville, Ohio, but expects to move it to Dayton as soon as a new site can be secured. The incorporators of the company are Charles O. Lucas, D. H. Lucas, Ralph E. De Weese, W. K. Marshall and G. L. Grimes.

THE CROWN MFG. & PLATING COMPANY, Dayton, Ohio, has been incorporated with a capital stock of \$20,000 by Philip H. Mueller, F. H. Hartzell, S. F. Mueller and others. The company has been in business for some time manufacturing Metal Signs and Hardware Specialties.

LONGMAN & MARTINEZ, Paint manufacturers, are about to file plans for an addition to their plant in Brooklyn, N. Y., which will be about 100 x 200 ft. in dimensions, five stories, providing 100,000 sq. ft. of floor area.

A. H. Weir, who for 28 years has been engaged in the Hardware trade at Elizabeth, Ill., has sold his store and business and accepted a position with the Fraser Mercantile Company, Freeport, Ill.

Olympic Hardware Company, successor to Adams Hardware Company, Port Townsend, Wash., has been incorporated with a capital stock of \$35,000. The company carries enlarged lines of Shelf and Heavy Hardware, Ship Chandlery, Loggers' Supplies and Paints and Oils. A jobbing and retail business is conducted.

Arkansas Retail Hardware Association.

THE eighth annual convention of the Arkansas Retail Hardware Association was held at Little Rock in the Auditorium of the Marion Hotel, June 11 to 13. The attendance was large and enthusiastic. The meeting was called to order on Tuesday morning by E. E. Mitchell, president, prayer being offered by Rev. Benj. Cox. J. N. Heiskell, editor of the *Little Rock Gazette*, delivered an eloquent address of welcome on behalf of the city, to which H. Watson, Jonesboro, made a felicitous response on behalf of the active members. W. M. Brandon, of the Phillips-Buttorff Mfg. Company, Nashville, Tenn., responded appropriately on behalf of the associate members.

Question Box.

A large part of the Wednesday sessions, both morning and afternoon, were occupied by the consideration of the Question Box, which was under the able direction of Hamp Williams, Hot Springs. At the outset Mr. Williams expressed his conviction that this part of the programme could only be made successful by the active participation of the members, and he was very successful in drawing out expressions of their ideas. Among the questions that were discussed at considerable length were the following:

Do you figure freight bills to know whether they are correct or not, and are you particular to make claims for damaged goods?

It was strongly argued that members should be careful to do these things—not because of the amount of individual items but for the sake of principle. One error or double payment probably would not amount to much but they count up. If the principle of exactness is established and every claim is pushed until adjusted, the trouble will be greatly minimized. Several merchants related experiences and incidents in point, and there was

a general sentiment in favor of greater strictness with the railroad representatives and more careful auditing of freight bills. A motion was finally made and carried to endeavor to make terms with Mr. Bragg, of the Little Rock Merchants' Freight Bureau to audit the freight bills of association members, giving them the benefit of his experience and knowledge of the subject. It was wisely brought out, however, that members should post



JOHN A. PLUMMER.

themselves more thoroughly on freight matters, getting the rates and classifications, and should try to get adjustments themselves before unloading them on Mr. Bragg.

On a rising market, should a Hardware merchant advance his prices in sympathy with the market?

As in many discussions of this question at other conventions, it was brought out that most merchants would

gladly keep their selling prices up in line with an advancing market, but were prevented from doing so by competition. The point was well made that a merchant must not only let his competitors know how he stands on this proposition, but must convince them that he is absolutely sincere. It is much easier to do this where competitors are members of the association.

The subject of advertising the store by means of local newspapers, circulars, signs, treatment of customers, &c., was discussed at much length. Among other questions to which attention was given were the following: Do employers spend enough time in training their clerks? Ought we to lend tools and other goods to our friends and customers, and if so, what plan can be adopted to keep track of them? Should price cards be used in window



E. E. MITCHELL.



C. E. TAYLOR.

displays? How many members find that their business is seriously affected by jobbers and manufacturers selling direct to consumers? Why is it that a retail merchant will not or cannot get as large a percentage of profit on a farm wagon as on a buggy, cultivator or plow?

President's Annual Address.

The annual address of President E. E. Mitchell was, in part, as follows:

I have been asked: "Does it pay you to attend these annual meetings?" I am looking in the faces of dozens of men now the friendship and association of any one of whom at our annual meeting it worth far more than it has cost me to attend every meeting since our organization.

I often get a single suggestion at these meetings that more than pays my expenses. If you insure in the Hardware mutuals, your rebates will pay you handsomely for being a member of our association. If a man who thinks it does not pay to belong to and attend this association will stop and examine himself carefully and honestly he will find that the trouble is with himself and not the association.

The Question of Freight Rates

is one of the biggest we have to contend with—too large to attempt to discuss in this address—but I do wish to recommend to our association that it try to make satisfactory arrangements with the Little Rock Freight Bureau whereby any member may get comparative rates quick before routing shipments of any magnitude.

As an example, to show where we may be greatly benefited by so doing, I will relate my experience in one shipment a few months ago. We had a very heavy car of stoves from Quincy, Ill., which came under a higher rate than that inserted in the face of our bill of lading. This started an investigation which developed the fact that had we had the car shipped to Little Rock, and reshipped, we would have saved \$20, but our information came too late, as it seems Little Rock only being a common point and not a gateway, the railroad company is not compelled to confine its rates from Quincy to Morrilton to the sum of the two rates, Quincy to Little Rock and Little Rock to Morrilton. Let us make some arrangements whereby we can get our information in time to save us money.

We Are Too Apt to Take It for Granted

that the wholesale house, or factory, will load and route our goods and bill them so they will take the lowest rate of freight, and that after they have been properly billed the railroad company will insert the proper rate. I will cite you from actual experience where in one ship-

ment alone all three of these assumptions lost out. We had a car of Furniture out of St. Louis. The weight justified a 50-ft. car. It was loaded in a 40-ft. car, and the surplus shipped local, carrying local rate of freight. The rate in the face of the bill of lading was higher than it should have been.

We wrote the general freight offices both in Little Rock and St. Louis, simply asking for the rate, and they each gave us a different rate. We went into court and got a settlement whereby the entire weight of the goods, both car and local shipments, was figured at the lowest rate named by the railroad company. It is my opinion that had our association had connection with the Little Rock Freight Bureau we would have gotten the same settlement through it and saved us cost and annoyance.

I also believe with such connection we can in many cases shorten the delays in transit that so often occur. We had a car of cement shipped from St. Louis which was on the road 30 or 40 days.

Legislation.

I believe we should have a standing Committee on Legislation, very carefully selected, as concerted action on the part of our association, together with the assistance and co-operation of other business men and newspapers, all of which is easily obtained, would get much needed legislation, and prevent a great deal of needless and bad legislation from finding its way to our statute books.

Association Should Incorporate.

I would recommend that we incorporate our association, thereby avoiding the possibility of any annoyance similar to that our National Association has experienced lately, but which I am glad to know has been settled satisfactorily.

Our association is to be congratulated upon its steady growth, in which the traveling men have played no small part.

Getting Together.

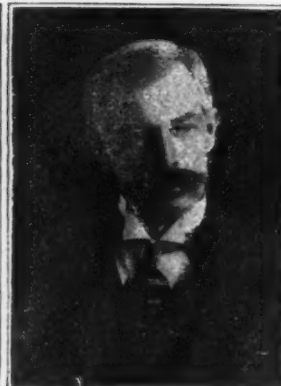
In conclusion, I wish to impress on the minds of all the importance of getting closer together. You can do this best by getting better acquainted. We have had this object in view in arranging every detail of this meeting; so loosen up and shake hands with every man and woman in the house.

The most of us are too much like turtles; we get back in our shells as soon as we get to town and only begin to come out about the time our meeting is coming to a close.

Let each member of this association assist the others until we all get our shells burst and our names and



HAMP WILLIAMS.



J. P. SIMPSON.

addresses on the lapel of our coats; then speak right out to the questions in the Question Box and all matters before the association and we will have the grandest meeting since our organization.

Secretary's Report.

The report of Charles E. Taylor, Little Rock, secretary-treasurer of the association, was as follows, in part:

Persistent work has been done through the secretary's office to arouse interest in this convention and to increase the attendance. Our efforts have been directed mainly at those who have not been members. We felt that those who had been attending our convention in former years would come without much urging. In these efforts your secretary has had the hearty co-operation of the other officers, who have done everything they could to make the meeting a success. Circular letters, personal letters, printed matter, all have been sent systematically and carefully to a list of over 400 Arkansas dealers in Hardware, Vehicles and Implements. The work of your asso-

ciate members must not be forgotten in this connection. The traveling men have been a great deal of help in securing new members for us.

Membership.

We now have 156 active members, including 12 who have joined us since the first of January this year. These are all good members in good standing; 135 of them have their dues paid up to this convention. Most of our members pay their dues promptly, as will be seen from this report, and all of our members should pay their dues promptly for their own good. I have observed that the member who forgets to pay his dues for more than one year loses interest in association affairs, and in most cases does not attend our convention.

Committee on Legislation.

Much good can be done through concert of action on the part of all dealers in the way of bringing about legislation which is shown by experience to be needed. I believe that it would be well for this association to appoint a Committee on Legislation. Some of the duties of that committee would be to ascertain by correspondence with other commercial bodies something of the work that may have been accomplished by them. The discussions and resolutions passed by us in convention are helpful in creating sentiment among those present, but it should be the specific duty of the committee of some of our members to keep active such sentiment among dealers of the State, and by persistent agitation assist in developing legislation, and it might be necessary to arrange so that this committee could take legal advice if deemed necessary. For instance, the question of incorporating the association is one that should be passed upon by a good lawyer. Recent suits against the National Association, of which we are all members, brought home to all of us possible liability in the event of damage suit or similar contingency.

Advertising.

Long ago progressive Hardware dealers quit discussing the question, Does it pay to advertise? and their questions now are, How do you advertise, and what results do you get from your advertising? Let us keep each other informed of all successful methods. When you do any special advertising, send copies of your newspapers or your circulars to the secretary's office. He may find space for them in your monthly circular letter. I would also like to have pictures of any specially good show windows that you may have.

During the year which is ahead let us endeavor to see what we can do in the way of advancing in the line of advertising. It includes also window display advertising. Let your secretary have the information asked for, and he will see that your successful methods are passed along for the good of your fellow members.

Catalogue House Car Signs.

That something can be accomplished by organization has not been shown better than by the concerted action on the part of the State Hardware associations in the matter of protest to the railroads about the car signs which the catalogue houses nailed and clinched on the side of every car that was placed on their tracks. The recent circular gotten out by this association attracted much attention, and similar circulars were sent out by other State secretaries. I am in receipt of a letter from National Secretary Corey, which would seem to indicate that we have carried our point, provided we follow it up, which will undoubtedly be done.

Freight Rates.

The matter of freight rates is one that is considered by us each year. I think it might be well for the association at this meeting to go a little further than has been attempted before. If the convention sees desirable I believe it could make a satisfactory arrangement with A. R. Bragg of the Little Rock Merchants' Freight Bureau to audit expense bills for overcharges, quote rates, &c.

Need of Members Among Vehicle and Implement Dealers.

At our 1903 convention, by resolution adopted unanimously our association invited into our membership all the retail Vehicle and Implement dealers in the State. There are not many such exclusive dealers in the State, and not many have joined us. Perhaps those present can suggest some way of attracting these to our membership. Their lines are kindred and we need them as members.

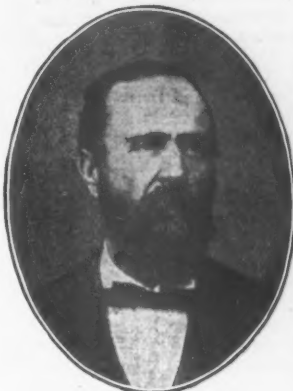
Work of the Enlistment Committee.

At our convention in 1905 we adopted unanimously a resolution admitting traveling men as members to the association, and many of them joined immediately. I send to them most of the letters which I get out as your secretary, and of the \$1 membership dues which they pay 25 cents is sent to the National, covering subscription

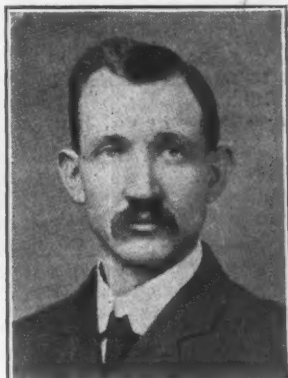
to the *Bulletin* for them. Your officers made selections from each line represented by the traveling men, and appointed a large committee under the name of Enlistment Committee, with the idea in mind that the traveling men would be of assistance to the association in enlisting new members, and they have not been disappointed. Some of the traveling men have given very loyal service to the association, and the influence of all of them, as far as I can learn, has been favorable to the work of our association. Our experience with the traveling men has had its weight. The Indiana Association at its last convention passed a resolution similar to ours, inviting traveling men to associate membership.

Jobbers Selling to Consumers.

Aside from the one or two instances reported under Grievances, I have had very few complaints relative to jobbers selling to consumers. I know of several instances where discussion of this matter has resulted in the jobber refusing orders, for instance, from blacksmiths. It is a hard matter to regulate, depending upon how far our members go in this direction. I have no doubt that we have frequently caused one jobber to drop such trade only to have it given to some other jobber. If you know of such cases that are in the nature of an imposition on the regular dealer you should advise the secretary, in



J. N. M. PITTMAN.



R. F. ROYS.

order that we may exercise our power with the jobbers where it is deemed wise to do so.

Mutual Insurance.

If our members appreciated the fact that Hardware mutual insurance is good insurance, I believe there would be more policyholders in this State. As it is, there are only 14. No one feature of our work tends more strongly toward perpetuating our organizations and prompt payment of dues, of holding the lukewarm in line, than our Mutual Fire Insurance. It is the balance wheel that affords impetus and power to carry us over the rough or difficult ground. It is an undeniable argument to convince the skeptical. It appeals to the economical faculties of the saving class. It is a good thing, and will bear harder pushing than we have ever given it.

Two States have been personally canvassed by one of our mutuals, Michigan in 1905, where was added about 300 new members; Illinois during the last year, where over 600 merchants joined. These new members will stay, because their insurance holds them. If a personal explanation of mutual insurance carries such convincing weight then we can use these arguments in our letters to immense advantage. We should try to get every member to take a policy in one or more of our mutuals. The *Bulletin* will give them more space in the future. Let us help our mutuals and thereby help our associations. None of these companies will insure a concern not a member of the State Association, and none of them will take a risk of over \$3000, some for not over \$2000 and none for less than \$500, nor for a shorter period than one year. They will insure Hardware stocks and stores and Hardwaremen's dwellings. It seems to me that every member in Arkansas should become a patron of the Hardware Mutual Insurance companies.

Convention Committees.

The following committees were appointed by the president to act during the convention:

RESOLUTIONS—H. W. Patrick, Russellville; K. G. McRae, Hope; W. T. Avera, Pocahtontas.

PRESS—W. L. Jeter, Jonesboro; J. S. Edmiston, Coal Hill.

AUDITING—R. P. Graham, Fordyce; J. J. Morris, Mountain Home; Y. C. Nugent, Russellville.

NOMINATIONS—John M. Pittman, Prescott; J. F. Maxey,

Ozark; J. Haralson, Augusta; Harry Hankins, Monticello; F. E. Pharr, Texarkana.

INSURANCE—W. A. Jackson, Dardanelle; A. D. Malone, Plumerville; J. A. Wilson, Ola; John R. McArthur, Clarendon; C. H. Stout, Black Rock.

LEGISLATION—R. F. Roys, Russellville; J. M. Pittman, Prescott; Hamp Williams, Hot Springs.

New Members.

Announcement was made by the secretary that the following houses had lately become members of the association:

C. W. Adams Hardware Co., De Valls Bluff.	Waldron Hardware Co., Waldron.
Hale Mercantile Co., Hot Springs.	Junction City Hardware Co., Junction City.
Gardner Bros. & Co., Russell- ville.	Chidester Hardware & Furniture Co., Chidester.
Kauffman & Wilson, Ola.	J. S. McWilliams & Son, El Do- rado.
Louis Koers, Little Rock.	S. G. Smith, Conway.
Beebe Hardware & Lumber Co., Beebe.	J. E. Barrett, Jonesboro.
J. F. Disheroon, Hot Springs.	W. H. Rankin, Ola.
Wood Rainwater, Morrilton.	Bridwell & Atkinson, Foreman.
Jones House Furnishing Co., Little Rock.	Mulkey & Son, Nashville.
Arthur & Tanner, Mena.	Monticello Hardware Co., Mon- ticello.
Tappan Hardware Co., Helena.	J. L. Allen & Co., Monticello.
Hermitage Hardware Co., Her- mitage.	W. H. Wilson, Lamar.
Mulberry Hardware Co., Mul- berry.	J. H. Mellor Hardware Co., El Dorado.
H. E. Lynch, Clarendon.	Tucker Hardware Co., Hot Springs.
J. S. Edmiston & Son, Cane Hill.	J. A. Richards, Mena.
Union Hardware Co., Junction City.	Frazier Bros., Danville.
Isaac J. Morris, Mountain Home.	Wood & Nelson, Strong.
	L. B. Krshka, Carlisle.
	M. G. Newsom, Paragould.

Election of Officers.

The following officers were elected for 1907-8:

PRESIDENT, Jno. A. Plummer, Marianna.
FIRST VICE-PRESIDENT, R. F. Roys, Russellville.
SECOND VICE-PRESIDENT, J. P. Simpson, Malvern.
SECRETARY-TREASURER, C. E. Taylor, Little Rock.
EXECUTIVE COMMITTEE (Term expires 1908)—Jno. M. Pittman, Prescott; Frank B. Gregg, Little Rock; N. T. Richmond, Ft. Smith. (Term expires 1909)—E. E. Mitchell, Morrilton; Hamp Williams, Hot Springs; J. H. Morgan, Camden; J. S. Edmiston, Cane Hill.

E. E. Mitchell, Morrilton, was chosen delegate to National Retail Hardware Convention at Boston.

Standing Committees.

The following standing committees were chosen for the ensuing year:

LEGISLATION—R. F. Roys, Russellville; J. M. Pittman, Prescott; Hamp Williams, Hot Springs.

INSURANCE—W. A. Jackson, Dardanelle; A. D. Malone, Plumerville; J. A. Wilson, Ola; Jno. R. McArthur, Clarendon; C. H. Stout, Black Rock.

PROGRAMME—J. F. Maxey, Ozark; W. L. Jeter, Jonesboro; Isaac J. Morris, Mountain Home; R. D. Jones, Magazine; V. B. McCloy, Monticello.

MEMBERSHIP: T. J. Mott, Helena; F. D. Barrow, Ozan; J. A. Richards, Mena; J. B. Hurley, Warren; B. W. Meriwether, Paragould; S. S. Glover, Lonoke; Harry Hankins, Monticello; Robert Conn, Stuttgart; R. P. Graham, Fordyce.

ENLISTMENT—*Hardware*: B. Morrison, Little Rock; E. C. Hayes, Little Rock; O. C. Word, Ft. Smith; E. W. Horne, Memphis; K. S. Skinner, Memphis; W. G. Barnes, St. Louis; J. M. Lofton, Chicago; T. D. Rowan, Louisville. *Stoves*: G. C. Robinson, St. Louis; Jno. J. Johnson, St. Louis; J. C. Stephan, Evansville; W. N. Brandon, Nashville. *Vehicles*: J. D. Burrus, Racine; T. B. Ingram, Owensboro; Frank Laster, Ft. Smith. *Harness*: J. W. Green, Louisville; A. C. Appleby, Dallas; P. K. Gunter, Little Rock. *Implements*: H. A. Guild, St. Louis; Geo. L. Turner, St. Louis; H. P. Alexander, St. Louis; Lafayette Burrus, Louisville; C. L. Craighead, Racine; E. Craig, Little Rock. *Miscellaneous Kindred Lines*: R. D. Fenton, Louisville; J. D. Waters, St. Louis; W. A. Smith, St. Louis; N. W. Smith, Pittsburgh; H. P. Taylor, Chicago; H. R. Trolinger, Kokomo; J. T. Lloyd, Pine Bluff; Paul Litzke, Little Rock; G. G. Armistead, Little Rock; Jas. Lewis, Little Rock.

Resolutions.

The following resolutions, as reported by the committee appointed for this purpose, were adopted:

Resolved, That we appreciate the courtesies afforded this convention by the committee of Little Rock jobbers, manufacturers and dealers. We extend our thanks also to the Simmons Hardware Company of St. Louis for the smoker and illustrated lecture given the convention Wednesday evening.

Resolved, We extend our thanks to John Hall, export sales manager of the Simmons Hardware Company of St. Louis, for his able address on Hardware trade in foreign countries.

Resolved, That we extend to the management of the Hotel Marion our thanks for the courtesies afforded us during the con-

vention. In common with other business men of the State, we are proud of Little Rock's magnificent new hotel.

Resolved, That we extend our thanks to the Southwestern Telephone & Telegraph Company for the courtesies afforded us during the convention.

Resolved, That we extend to the *Little Rock Gazette* and *Democrat* our thanks for the fair and full reports of this convention made in these papers.

Resolved, That we extend our thanks to the Pittsburgh Steel Company, American Steel & Wire Company, Simmons Hardware Company, Oneida Community, Winchester Repeating Arms Company, Simonds Mfg. Company, Philip Carey Mfg. Company and the Little Rock Furniture Mfg. Company for exhibits made at this convention, and for the efforts they have put forth to make our meeting a profitable one.

Resolved, That we extend our thanks to the following trade journals for courtesies shown by them to this association during the year: *The Iron Age*, *Hardware Dealers' Magazine*, *Stoves and Hardware Reporter*, *Farm Implement News*, the *Tradesman*, *Memphis Journal of Commerce*, *Iron and Machinery World*, *Memphis Trade Journal*, and *Farm Machinery*.

Resolved, That we extend our thanks to *The Iron Age* for the publication of the 1906 minutes and for its uniform favors during the year.

Resolved, That we extend to the Joint Committee of the jobbers and retailers of Hardware our appreciation of their continued and arduous work during the year in behalf of the retailer.

Resolved, That we extend to the Little Rock Board of Trade and Geo. Russ Brown, its secretary, our thanks for courtesies tendered this convention, and especially to Mr. Brown for the able address delivered by him at this convention on the "Resources and Possibilities of This Great and Growing State."

Resolved, That we extend to the *Memphis Trade Journal* and the *Memphis Journal of Commerce* our appreciation of their efforts in endeavoring to organize State Hardware associations in Tennessee, Mississippi, Alabama, Louisiana and Florida.

Resolved, That we request the National Retail Hardware Association, which will meet next week in Boston, to endeavor to organize these States during the coming year, feeling as we do that the Southern portion of the United States once organized the National Retail Hardware Association can acquire no more loyal members in any section of the whole country.

Resolved, That we memorialize the Texas Retail Hardware and Implement Dealers' Association to unite with the National Retail Hardware Association. We recognize the great work that is being done by the National Retail Hardware Association, and we believe that our brethren in our sister State could be of great assistance to the retail dealers in the United States in taking such action. Their continued refusal to unite with the National Retail Hardware Association seems to be misunderstood, and we know that our brethren of Texas would be welcome in our National Association.

Resolved, That we extend to the recent organizations in the States of Georgia and the Carolinas our congratulations on their organization and our best wishes for their continued growth and prosperity.

Last but not least, we extend to our friends, the traveling men, who are the honorary members of this association, our sincere thanks for their untiring and loyal work during the year in behalf of this association.

How to Take an Inventory.

The following paper on "How to Take an Inventory" was read by J. B. Hurley, Warren:

The question given me for discussion upon this occasion is an important one. In our line of business buying is an important item. Selling calls forth our ability and training, but no Hardware business can expand and yield profits that does not look carefully after the inventory.

At this time of the year we begin to turn our minds toward this department of our work, for, to my mind, there is no better place in all the year for the annual inventory than June and July. Our firm uses this time and finds it to be very advantageous. At this time our stock is lower than at any other period of the year, the days are longer, the daylight brighter, the trade less brisk, and these considerations are a very material benefit in the matter of taking stock.

About June 15th We Begin

to get our goods in shape, arranging everything of a kind together, noting the cost mark is on every article. We frequently find tags lost from articles, and in such instances we re-mark all goods found in this condition. We commence on the Shelf Hardware side and go through all boxes and drawers containing each broken package, placing the quantity and cost on a slip of paper in plain view on the end, and in case a sale is made before taking the amount sold is placed beneath the first figures, so that the man calling off can deduct this amount.

Closed Doors for Inventory.

We get the store in readiness about June 27, and close our doors, placing the following placard upon the door:

*Closed to Take Inventory.
Will Open for Business July 1st.*

Some, no doubt, will say that we lose business by using this method, but when you take into account the time consumed by the plan of taking stock while the store is open for business, and the liability to mistakes that necessarily follows, we have no hesitancy in saying that the loss of trade is more than overbalanced by the gain of time and correctness of inventory. Time is money and correctness is more than money. The business man of to-day is one who knows the value of time, and who realizes that the perpetuity, expansion and gain of his business depends largely upon the fundamental principle, "Know your stock in trade."

Admitted at the Back Door.

By this method we sometimes sell larger and more profitable bills to parties than when wide open for trade. A customer can be easily and quietly admitted at the rear door, and when such a one comes in he is there purely for business and can be quickly and profitably handled.

In our plan of invoicing we have one man to call and another to write down, each two working different sections of the store. This avoids any conflict and greatly facilitates the work. Quantity and price each are put down, but extensions are left to the bookkeeper, when same are copied into regular book.

We List All Merchandise

at what it cost us, with the exception of broken and damaged articles; these we put down at what we think they are worth. Nails, Bar Iron, Wire, Horseshoes and Bolts we set down at market price, regardless of cost. After stock in store is all listed, then we throw open our doors for business, and oftentimes we can see at once an increase in our trade. It takes some business courage to adopt this plan of "Closed Doors for Inventory," but my experience in the matter assures me that it pays.

In Case of Fire.

This work done, we proceed to the warehouse, with two men to take invoice of stock there. In this connection, I will tell you how we keep track of stock in warehouse in case of fire: We keep a book known as "Warehouse Book," that goes into the safe every night. In this book we have a list of goods in warehouse at last inventory; also every article that has gone in there since. If a car or an entire bill has been unloaded, the same is charged on warehouse book, giving date of receipt and who from. Every article sold out or brought to the store is credited on warehouse book. By this plan we can tell at any time amount of goods on hand. This procedure is gone through every year.

Separate Listing.

In our inventory book we always list goods in warehouse separately. We list our Harness and Saddlery, also China and Glassware, separately, so we can know just how much we have invested in this class of goods. In going through our stock we find out of date and hard stock. This we move out to the front and sell it for what it will bring.

We wind up our inventory by listing fixtures at cost and deducting 10 per cent. for wear. We follow this with an expense inventory, such as Paper Bags, Books, &c.; then with insurance inventory figured out, and extensions and footings made, our invoice is complete.

Profitable if Not Pleasant.

The work of taking an inventory is not a pleasant one, but it is a profitable one. Our clerks look forward to it with dread, but the owners look forward with anxiety, for who can tell beforehand what the harvest has been?

It has not been my purpose to give you the ideal plan of invoicing, but only my experience, and I ask you to consider it upon its merits. Ideals are attained only after many and varied experiences. Your plans and methods may be better than mine; if so, I want to learn them—"knowledge is power" in the Hardware business as well as in other lines of work, and every one of us should strive daily to know our work better.

Hardware Trade in Foreign Countries.

A very entertaining and suggestive address was made by John Hall, export sales manager of the Simmons Hardware Company, St. Louis. Mr. Hall accompanied his remarks with some stereopticon views, presenting numerous pictures relating to some of the countries which he has visited in his official capacity. These pictures were of an unusual character, having been collected either

by himself or the company's foreign salesmen, the originals occupying a place on the walls of the offices of the company. They showed the native merchants, their clerks, stores, &c. A part of Mr. Hall's elaborate address is given below:

The very intelligent faces before me say more eloquently than words could possibly do that each one of you individually believes that the world is advancing rapidly, that conditions are changing each day and that to be progressive, to continue to be prosperous, our business affairs have got to be regulated to meet those changing conditions.

I trust that not a single member of this association is fooling himself by believing that his business is standing still. There are no such conditions in business life; it is either going forward or it is going backward, backward at least by comparison with the progress that is being made from one end of the United States to the other, and from one part of the civilized globe to the other. The adage that all things come to the man who waits is very true, but it was never intended that he should sit down and wait, but to be about and hustle while doing the waiting.

I want to set it down for your consideration as an axiom that

The Selling of Hardware Is the Same in Every Part of the World.

Many of you will disagree with that, many of you will believe that it differs in the different cities in Arkansas; such is not the case, the underlying principles are identically the same, the conditions only change.

Another axiom to which I will ask your attention is "The handling of big things is vastly easier than the handling of little things." Men who deal in affairs in a large way are more liberal, more thoughtful, more considerate, more willing to give and take than men who are in the habit of being small and little on account of their environments, and whose opportunities do not give them the chance to understand that the world is made up of a whole lot of people and no single man can prosper without his fellows enjoying prosperity to an extent at least.

It has been my pleasure to visit and sell in his own Hardware store almost every kind and color of man—black, white, yellow and a few of them green. I have taken orders from the merchants of Europe, Asia, Africa, Australasia, the Islands of the Atlantic and the Pacific, North and South and Central America, and I have failed to note in all of my experience a single exception to the rule that the principles which govern in the selling of Hardware in this country, either retail by the single piece or wholesale by the case, applies everywhere else.

To Give a Man Full Value for His Money

and to give him the very best possible service which he can obtain is the rule that will bring success no matter in what country, in what city, in what town, in what village, or what kind of man, either color or nationality, that you try to do business with.

There are certain fixed laws that govern the selling of Hardware applicable in all countries of the world, fixed and unchangeable as the turning of night into day, the changing from winter to summer, laws which, if observed and followed, lead to success, which, if ignored, bring failure. Some men understand these laws by intuition, and those kind of men are what we call "natural born salesmen."

To illustrate what I mean; a young man behind the Hardware counter in the city of Little Rock who understands the science of selling and applies it, so as to make that man who comes into the store glad that he came in and look forward with pleasure to the time when he will have to come again, can be transplanted to London and he will adapt himself to the changed conditions and go on selling successfully.

The Three Great Hardware Producing Countries

are England, Germany and the United States. France produces some Hardware, but not much by comparison, and the others produce more or less goods that are used within their own domain, but are of small moment in the markets of the world.

The battle royal for business is between England, Germany and the United States, and the commercial war is being waged with great intelligence by an army of salesmen from each country, drilled and trained, who know their business and know how to talk it.

No Such Thing as Competition

Some of the Hardware salesmen that I see here tonight—you men who carry the catalogues and you men who stand behind the counters—think at times that you have hard competition. You do not know what it means; and yet I say to you in all seriousness that I have proved to my own satisfaction that nowhere in the battle, either in wholesale or retail, in this or in any other country, is there any such thing as competition. The word has no

place in the Hardware dictionary, it is a condition existing only in the imagination.

When we fail to effect a sale, let's be honest and put the blame where it belongs—on ourselves; do not blame the other fellow; we fail because we have left undone something that we ought to have done, or we have done something that we ought not to have done. Sum it up as a state of not being ready, not being equipped, not being properly trained when we went into the game.

Position of the United States.

I shall not deal in statistics, but before we go into the details of our subject let me remind you of these facts—the United States has only about 3 per cent. of the world's population, and is producing in 1907 fully 25 per cent. of the world's gold, 30 per cent. of its silver, 40 per cent. of its iron, 42 per cent. of its steel, 45 per cent. of its coal, 50 per cent. of the petroleum, 60 per cent. of the copper, and 75 per cent. of the cotton. Can you wonder at the great prosperity of this nation, or that with a basis of such a percentage of the raw material, our Hardware should find its way into foreign markets?

The American mechanic—all praise and glory to him—has as a result of his daily labor 25 per cent. more finished product than the mechanic of any other country; he produces in Tools and Hardware an article that is superior in finish, symmetrical proportions and better suited to the purpose for which it is intended than can be found in any other land.

The American Hardware salesman—I take off my hat to him, for he is a man among men, an educator, a power for good—when he starts abroad has written in his instructions: "Make a success or don't come back." I have noted that they all come back and show their right to return by the orders they have taken.

Selling Hardware in Foreign Countries

started in a small way, the United States took the small leavings after England and Germany get through. Gradually we got stronger and fought for a share of the trade, carrying the fight even to the gates of our great competitors and then into their very own country, and to-day American Tools and Hardware are as well known in England and Germany as they are at home.

I am comparatively a young man, and yet in the store where I learned the Hardware business as a boy the Padlocks, Trace Chains, Cutlery, Files, Anvils, many of the Tools and other goods too numerous to mention were imported from Germany and England. The sending of these goods abroad has now become so common that it fails to excite comment, and it is taken as a matter of no particular moment in our own business in St. Louis to have orders for Cutlery and Files from England, and even Pocket Knives and Butcher Knives from Germany.

Quality Alone Responsible

Do you think that this great foreign business on American Tools and Hardware has been built up on prices? Not a bit of it. No fear. Quality alone has been the slogan used; it has won in every country, and is winning to-day and must continue to either win for us or lose, for we cannot in the United States and never intend to prostitute our unrivaled products to the sordid question of price.

A Neglected Line in Arkansas—The Vehicle and Implement Business.

This was the subject of a paper by Geo. L. Turner of the John Deere Plow Company, St. Louis, in part as follows:

To my mind the Implement and Vehicle line is just as important and profitable in every sense of the word as anything that it is possible for the merchant to handle. I say this without fear of successful contradiction, that if the merchant will give one-half the attention to these lines that he does to the various other lines he handles—Hardware, Stoves, Furniture, &c.—he will find that his profits will be just as great, if not greater, for the capital invested than in any of these lines. You merchants who do not handle Agricultural Implements and Vehicles, but contemplate doing so in the future, inquire from some successful merchant who has built up a trade on this class of goods which part of his business he likes best and nine out of every 10 will tell you that these lines are very important indeed and should be pushed just as hard as anything that they handle. Many of you look upon them as the poorest stock you can handle, yet know all the time that it is just as necessary for the farmer to have these Tools to till the soil, plant, cultivate and harvest his crop as it is to have houses, barns, mules or any other necessary article used on the farm.

The Farmer Is Always Anxious

to buy the different improved Tools that will aid him in doing his work. He is the man of the hour and his

needs should be looked after as much, if not more, by you merchants than any other class of trade that you have. What would the merchants do without his trade? Then why is so little attention paid to the very articles that are most needed by the farmer to help him develop the country? Improved Implements will enable him to do more work to the man than he ever did before.

The prosperity and development of the South depend almost entirely on the farmer. It was only a few years ago that farm labor was so cheap that the farmer had all the help he wanted and at reasonable prices, and he could make a crop on far less than he can to-day, but the scarcity of labor and the high price paid for farm help now forces the farmer to buy the very latest improved tools to assist him in doing his work. He is forced to get from one to three men's work out of every man on his place, and he has got to buy these goods from some one in order to do it, and if you do not carry these lines in stock he is just as certain to buy from the catalogue houses as can be, and you cannot blame him for doing so. You say to him, "No, I haven't the article in stock, but I can get it for you," but he wants it right now, and if you have the article in your warehouse set up in shape to exhibit and explain the many other good features you will find a ready buyer.

It Is Just as Necessary to Keep a Stock of These Goods

on hand as it is to keep a stock of anything else that you carry. Now I wish to ask this question of you who handle these goods in a kind of a half-hearted way: Do you set up and arrange your goods so as to interest the prospective purchaser in your line? Are you thoroughly familiar with the good points of the line of goods that you are handling? You will be surprised if I tell you that there are merchants in this State handling these goods whose clerks are not posted as to what lines they handle. A Plow is a Plow, a Cultivator is a Cultivator, and a Planter is a Planter; it makes no difference whose make it is.

Now we will just compare the attention given this line with the attention given to some other line, say, Stoves. When the season comes on for Stoves you have your clerks go out in the warehouse and bring in a sample of each Stove you have. They polish it up, put on the nickel trimming, and everything else is forgotten in your effort to sell this particular line of goods. I would like to inquire how many Stoves you would sell if you brought a sample out and did not put on the legs or the nickel trimmings, polish or anything else that would attract the prospective purchaser? Not many, I assure you.

Many Never Set Up a Sample.

Yet I tell you that there are merchants in this State who sell this class of goods by the car who never set up a sample, and when they have a prospective buyer for anything in this line they call one of the clerks and have the farmer drive around to the back part of the house and load into the wagon whatever tool is wanted and depend on him to get it together as best he can. A great many of you have the boys to set up a sample Cultivator, but as far as oiling the bearings and tightening up the bolts and adjusting the tools, so the farmer when he gets ready to purchase can come in and look it over intelligently, there is not one merchant, I say, in this State who pays as much attention to this as he should.

A good many merchants when they receive a car of these goods have the drayman haul them up and set them out in the weather, then you have the porter to go out and set up the samples; if he gets them together all right, if not it is all the same, but when it comes to the Stove line and you have a prospective customer you can explain to the minutest detail every good point about it. The fireback, the firebox, and all that, but what about the implements when the season is on. A great many of the Cultivators are set up without the rigs. The Plows and Planters are set up without the handles, and the extra Shears are forgotten, and in many instances after you have set them up you go to work and pile everything in the store that is loose right on top of them.

This Is Not Right,

and I will enter a vigorous protest just as long as this important line of goods receives such little consideration at your hands. Some of you say, well, there is no profit in this line of goods. If so, whose fault is it? Not the goods, I am sure, or the manufacturer. You take the Vehicle line, for instance. You go into many stores, and try to interest the merchant. He will say: "No, I do not care to buy any Buggies or Wagons, as there is no money in them, and the trade in this section wants the very cheapest they can get," or make many other excuses for not buying.

Do You Know How Many Carloads of Buggies

were sold in the State of Arkansas last year from the manufacturer direct to the consumer? There was some-

thing like 300 cars, or about 1500 Vehicles. This from the most reliable information obtainable, and on every Vehicle that they sell they make an excellent profit, and the home merchant getting not a cent. They do not seem to care whether there is any demand or not, or whether there is any crop or not; they create a demand, and you can bet your life that when the railroad company switches a car of Buggies to the side track from one of these Buggy houses they will sell that car, if not two or three more, before they leave, and you know that these are facts. Why? Because they have the men that go after the business and get it.

I am as much opposed to this method of doing business as it is possible for a man to be, but it shows what can be done if you merchants will send one or two men to go

Out in the Country After Business,

just as these men do, and if they go after the business with the determination that they should it is bound to come. There has nothing been said about a law compelling these Vehicle trailers to even pay the city, county and State tax. This should be done by all means, and if the merchants handling these lines of goods do not do it I am absolutely certain it will not be done. This is a matter that should be attended to by all means at the meeting of the next Legislature, and you will find the traveling men anxious and willing to do all they can to bring these conditions about.

Have an Implement Man.

Now let us see if you cannot give a little more time to the lines I have just mentioned. At the beginning of the season clear out your warehouse and set up a sample of each implement that you have. Make one man out of your store your implement man and let him attend to this part of your business. It makes no difference whose line you handle, when the traveling man comes around get him to explain the different good points about your line and I am absolutely certain that he will be just as glad to help you as you will to be helped, but it is a little discouraging for a traveling man to come in and have to set up the samples himself, then, after he is gone you sell the samples, and do not set up any more until he comes around again.

The Implement, Vehicle and Wagon business is a business that will take any one man's time, and you should have one man out of your store to attend to this line alone. That is, if you have trade to justify it. Then when you have an inquiry this man understands all about it, and can explain the different goods intelligently. If you will do this, you will be greatly surprised at the volume of business you will do in these lines.

Convention Notes.

On Wednesday evening, in the convention hall at the Hotel Marion, the Hardwaremen and other visitors were entertained at a smoker tendered by the Simmons Hardware Company, St. Louis. During the evening John Hall, sales manager for foreign countries for the company, delivered an address on "Hardware Trade in Foreign Countries," which was illustrated by stereopticon views. A part of Mr. Hall's address will be found elsewhere.

Col. Morris B. Belknap, vice-president of the Belknap Hardware & Mfg. Company, Louisville, Ky., was one of the notable visitors to the convention. Colonel Belknap was very cordially received, and in response to an introduction by the president made an interesting and felicitous address.

Among other interesting and suggestive papers read at the convention were those of George R. Brown, secretary of the Little Rock Board of Trade, whose subject was "Why Our Business Should Recognize the Resources and Possibilities of Arkansas"; by R. F. Roys, Russellville, on "Needed Legislation"; by A. V. Walker, treasurer of Bracy Brothers Hardware Company, Little Rock, on "Window Dressing"; by J. D. Mays, Helena, on "Freight Rates," and by C. T. Rosenthal, Batesville, on "A Lifetime in the Hardware Business in Arkansas."

THE OWENSBORO HARDWARE & IRON COMPANY, Owensboro, Ky., has been organized, and will shortly be incorporated with a capital of about \$125,000. The company will do a wholesale Hardware and iron and steel business, and will be controlled by the interests that now own the business of W. A. Guenther & Sons, wholesale Hardware merchants. It is also the purpose of W. A. Guenther & Sons to merge the present firm into a corporation with a capital stock of between \$75,000 and \$100,000 in the near future.

JAPANESE COMMERCIAL COMPETITION.

(Concluded from our last issue.)

Certain grades of cotton staples are quite largely manufactured in Japan, most of which are sent to the Chinese market, but the quality made as yet does not materially interfere with American trade. The Japanese are making what is said to be a good line of Safes. Incidentally, it is observed, that at anything in wood or metal requiring a lacquer or Japan finish they are adepts. The consensus of opinion among qualified manufacturers and merchants is that in the reproduction of foreign kinds and styles of goods, the more skill and practical knowledge necessary the more apparent are the failures. While they make many articles seemingly excellent, actual use quickly develops the differences between the spurious and genuine, and if there was no appreciable progress the subject of Japanese competition might safely be left to solve itself, but failures do not discourage them, and they are profiting by past unprofitable experiences. The fact that they have a coolie and common laborer wage of the equivalent of 2 cents per day, and other labor in proportion, together with ability to live cheaply, is an enormous advantage.

Higher Moral and Commercial Tone.

The Japanese are constantly increasing their lines of machinery, and lately have been getting into Manila strongly. The tone of Japanese business and social morality, too, has been steadily improving for years, and now American merchants trading with them assert that many of them are quite as capable of upright dealing as are straightforward business men in Western countries. In this connection it may be said that with the opening up of Japanese ports for commercial intercourse during the last half century the Jap has copied not only the desirable features of Western and modern civilization, but along with it has absorbed some of the rascality of his commercial tutors in two continents, much as the American Indian has been taught and been imposed upon in the United States. It was common practice for exporters to Japan, as well as to other more or less benighted countries, to take advantage of lack of knowledge, and allowance must be made for much that, after all, only Western civilization is responsible for. As time passes, however, much of this dross in the Japanese character is passing off in the process of fermentation, as it were.

Present Methods of Developing Japanese Industrial Enterprises.

Japan, now accepted as a nation of first rank in consequence of her war-making power, conscious of the futility of relying on imitation solely in manufacturing, is inducing foreigners from America and Europe, by offers of tempting remuneration, to go to Japan and reorganize, as managers, various kinds of business there on the most approved lines, thus teaching the receptive native Japanese correct processes under favorable home conditions. In the past costly mistakes were also made through the media of what was often imperfect and hastily acquired knowledge by native Japanese youth abroad, who would often cram into months what should properly have taken years in which to have mastered theoretical and practical details, both in mental and manual occupations.

A Hard Race to Beat.

The opinion obtains among a large number of American manufacturers of numerous kinds of goods that the Japanese will prove a hard race to beat, and as one of them phrases it, "The Russians found that out." While large numbers of such producers who have been consulted are often not thoroughly informed on the subject of Japanese competition, the tone of their utterances indicates respect for latent native ability, fixity of purpose and appreciation of what may be expected in the way of successful competition, as the Japanese steadily progress. We know of applications for file-making machinery, from which individuals can draw their own inferences. From a number of makers we learn of initial orders from Japan which have proved to be the only orders received, which is interpreted to mean the obtaining of samples or patterns for reproduction in the Land of the Setting Sun.

Additional advices indicate the importation by Japanese houses of machinery to be used in various manufacturing enterprises in that country. In weighing devices goods formerly made here are now being manufactured in Osaka and perhaps elsewhere, the imitations being of the best makes.

Umbrellas and Parasols.

In the line of umbrellas and parasols, so far, they are competing in the American market principally in bamboo and the commoner roots for handles, in which, however, they beat American and European makes in both finish and price fully 50 per cent. In umbrella silks they are believed to have as yet tried to make only in sample pieces of a high grade, which one informant says is landed in the United States fully 25 to 30 per cent. less than domestic or European manufacture. While so far no umbrella ribs or metal umbrella furniture has appeared, an American manufacturer is satisfied that the Japs can beat present sources of supply, domestic and foreign, at least 25 per cent.

Wire Drawing and Brick Making Machinery.

Recently the Japanese Government imported a complete outfit for drawing wire and we are informed that many of the native industrial enterprises are more or less under Government auspices and patronage. In electrical material and apparatus a prominent American company refers to the manufacturing problem as one to which the Japanese are apparently giving considerable attention, but this statement is coupled with the opinion that it will take them some years to reach the standard reached in the leading countries. One company on the Atlantic Coast recently shipped a complete outfit of brick making machinery to Japan.

In certain kinds of blacksmith's tools and machines the demand from Japan has slackened to such an extent that makers here conclude the goods are being made in Japan. From one source we are told of pipe foundries of moderate capacity established there which for two or three years have been supplying pipe in a moderate way to their own cities. From the reports of an agent of an American cement house who has been carefully investigating in Japan, it is believed that the Japanese intend soon to build a large amount of machinery for the manufacture of Portland cement.

Government Support.

The same authority says: "The Japanese are great hands to buy one order and then duplicate it themselves, frequently under the support of the Government. They are very reliable people, but as clever and cunning as the world makes them, and some day the United States may learn that we have an extremely strong competitor in the East after China has been thoroughly impregnated with Japanese brains, and there is little doubt that this is being done right along." He also attributes to the Japanese the instigation of the last Chinese boycott. The dropping off in gear business is believed to be a direct result of the importation of gear cutting machinery by the Japanese. In rice machinery American machines are being imitated in Japan.

Copper Cables and Hand Tools.

In the matter of copper cables for transmission purposes, one large interest speaks of their requesting a great deal of information and many samples, but in following up the question found that the cables were being made in Japan. Their subsequent inquiries were not responded to and samples asked for were not given. A leading New England manufacturing company of Tools says that "owing to the fact that we knew they were imitators, and it is not safe to place any goods on which time or ingenuity has been spent in their market," they have never catered for that trade, "as one order would probably be about all we would receive and our competition would be increased."

Rubber Goods.

The following opinion is that of one of the best and most prominent Rubber manufacturing companies—viz.: "Japan is an imitative country. What it first buys it next essays to copy, exact, if possible, of the productive genius of others. In many instances our goods have been

copied to the exactitude in appearance of even inconsequential factory marks, evidently fearing that omission would affect serviceability. They have not yet copied quality, and many articles copied have found only original first sale and business, then renewed with us. In general, we are selling as much in dollars and cents as heretofore in Japan, the sales falling off on easily made goods and increasing on technical articles where knowledge entered into production."

In special Rubber Goods another authority says that Japanese manufacturing so far is not from crude materials, but from unvulcanized stock, which is then formed into the shapes desired; so far as known there being no factories erected to manufacture a general line of Rubber products. In Steam Pumps the competition so far, according to a high source, is believed to be not in excess of 1 per cent.

Wire Nails, Emery Wheels and Locks.

The situation in Wire Nails, according to experts, is that while they were manufactured to a considerable extent some years ago, practically no Wire Nails are now being made in Japan; the understanding being that a limited equipment exists but is not now in operation. Japanese Emery Wheels are said to be very inferior, the American product being sold at a very much higher price. In Locks of some classes a large part of what they use are manufactured there, although certain styles are bought in America.

PRICE-LISTS, CIRCULARS, Etc.

Manufacturers in Hardware and related lines are requested to send us copies of catalogues, price-lists, &c., for our Catalogue Department in New York; and at the same time to call attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

THE AVERY STAMPING COMPANY, Cleveland, Ohio: Catalogue No. 2, relating to Shovels, Spades, Scoops, Garden Trowels and Post Hole Diggers.

GOWANDA AGRICULTURAL WORKS, Gowanda, N. Y.: Catalogue E, devoted to Plows, Lawn and Field Rollers, Shovel Plows, Cultivators, Potato Diggers, Road Scrapers, Caldron Kettles, Wood Mill with jack, Horse Powers, Power Shears, Bench Drills, &c.

GRAND RAPIDS BRASS COMPANY, Grand Rapids, Mich.: Large illustrated catalogue with accompanying price-list of Trimmings for Refrigerators, Cooling Rooms, Kitchen Cabinets, &c.

ROLLMAN MFG. COMPANY, Mount Joy, Pa.: Catalogue No. 1195, relating to Meat and Food Choppers, Peanut Butter Machine and Spice Mills, Cherry Seeders, Apple Cutters, Peach Stoners, Potato Cutters, &c.

THOMAS HALL, 257 Thirty-ninth street, Brooklyn, N. Y.: Illustrated matter of the Pushlok, the knob of which is pushed on the outside of the door and pulled on the inside, instead of being turned to open the door.

THE GRANITE STATE MOWING MACHINE COMPANY, Hinsdale, N. H.: Illustrated pamphlet of the Capitol Lawn Trimmer and Edger.

THE GRIFFIN MFG. COMPANY, Erie, Pa.: A well arranged 1907 catalogue relating to wrought steel and bronze Hinges, Butts, Shelf Brackets, Folding Brackets, Door Bolts, Drawer Pulls, Push Plates, Sash Lifters; also Door Hangers, Steel Track, Stay Rollers, Mending Plates, Corner Braces and Irons, Wagon End Gate Plates, Foot Scrapers, Pointing and Bricklayers' Trowels, Household Cleavers, Tie Buckles, Wrought Washers, &c.

A. D. HOWE MACHINE COMPANY, Wheeling, W. Va.: Illustrated folder relating to Excello Water Power Washing Machines. The power is obtained from a water motor operated by city water faucet.

NOVELTY STAMPING COMPANY, Bellaire, Ohio: Catalogue of a line of Enameled Ware, which is referred to as being of the best quality and workmanship, artistic in appearance and absolutely nonpoisonous.

ADDRESSOGRAPH COMPANY, 232-240 West Van Buren street, Chicago, Ill.: Illustrated catalogue, No. 11, relat-

ing to the addressograph, a printing machine designed for office work which will print 3000 addresses per hour.

AUTOMATIC TIME STAMP COMPANY, Boston, Mass.: Circulars, &c., referring to the Automatic Time Stamp and Register System.

FOX CUTLERY COMPANY, Milwaukee, Wis.: Booklet of testimonial letters referring to Fox Razors, with illustrated cards devoted to Pocket Cutlery and Scissors.

CRESCENT BELT FASTENER COMPANY, 143 East Twenty-third street, New York: Circular referring to Crescent Belt Fasteners and Handy Bar Belt Dressing.

UNITED STATES REGISTER COMPANY, Battle Creek, Mich.: Illustrated catalogue, No. 11, referring especially to the Jones Side Wall Register and containing general information on methods of warm air heating.

FOREST CITY PAINT & VARNISH COMPANY, Cleveland, Ohio: General catalogue of Paints, Varnishes, Fillers, Dry Colors, &c., with booklet entitled "Our Paint Proposition."

GLEN MFG. COMPANY, Ellwood City, Pa.: Illustrated folder with price-list referring to the Glen Steel Folding Mat.

KELLEY-HOW-THOMSON COMPANY, Duluth, Minn.: Stove catalogue for 1907, illustrating Ranges, Cooking and Heating Stoves, Stock Tank Heaters, Oil and Gasoline Stoves, Stove Pipe, Elbows, Dampers, Coal Shovels, Hods, Registers, Stove Boards, Stove Polish, Oil Cans, &c.

Export Trade Topics.

PRACTICAL SUGGESTIONS ON EXPORT TRADE.

Tenth Article.—FOREIGN CORRESPONDENCE.

FOREIGN correspondence must be handled with the utmost delicacy and intelligence. Certain rules to guide it ought never to be forgotten. For example: The acceptance of an order or a promise to ship goods is a contract. There is a good deal of juggling with such contracts by many American manufacturers who adhere to or rescind their agreements as the spirit moves. Perhaps no other feature of American business methods has contributed so much to a certain loss of respect for our manufacturers that is manifested in many quarters abroad.

Correspondence Must Be Exact and Precise.

The foreigner cannot be expected to be a mind reader. Words in black and white are taken to mean what they say thousands of miles away. The receipt of two letters from the same house assuming positions or policies diametrically opposed does not increase respect for or satisfaction with the house sending them. Information must be given fully and in unmistakable terms. Inquiries should be answered in the smallest detail.

Prices quoted are interpreted by almost all foreign customers to hold good indefinitely unless a limit is specifically named. "All quotations subject to change without notice" means nothing to the foreign customer. If prices are quoted at all it is supposed that it is with the purpose of obtaining an order. A general phrase may answer for a printed price-list or discount sheet, but even then it should be understood that orders will be accepted at quotations named until the customer shall have had an opportunity to receive due notification of changes in quotations. Letters ought always to state specifically for what period quotations given hold good.

Making Clear the Selling Points of a Line.

The foreign correspondent must know how to describe his goods in black and white. A conspicuous lack of ability to impress the strong selling points of a line is characteristic of many letters sent abroad. It seems a physical impossibility for some men to talk their goods in a letter as they can and do talk them when face to face with their customers. Competing goods and conditions in different territories ought to be understood in order to present one's own goods effectively. And here again, in let-

ters as in invoicing, no purely American trade names or abbreviations should ever be employed. Nine times out of ten they will prove a Chinese puzzle to the recipient, and probably be misunderstood if he concludes he has made anything at all out of them.

Foreign Languages, Money and Measures.

Just as a traveler to foreign countries ought to speak the languages of the customers he visits, so correspondence with customers who do not address the manufacturer in English should be conducted in their own languages. Translations of correspondence can be easily arranged in New York on reasonable terms. But care must be exercised to select competent and careful translators. Instances have occurred of law suits resulting from a mis-translation of an order for six *only* of a certain article as six gross, and consequent shipment of the greater quantity.

If prices are quoted per ton that weight should always be the English, or long, ton of 2240 lb. Otherwise the weight of 2000 lb. must be specifically indicated. Similarly, the expression cwt. must never be used to indicate 100 lb., as a great many American factories constantly do use it, to the subsequent dissatisfaction and disgust of their foreign customers. Cwt. means but one thing, that is the English hundredweight of 112 lb.

Prices should preferably be quoted in pounds, shillings and pence, or to France in francs, or Germany in marks. If quoted in dollars, then the quotation should plainly and specifically provide that dollars will be converted into foreign currency at the rate for such exchange prevailing in New York at date of shipment, or that charges for collection, exchange, &c., will be added. The former is much to be preferred. Omission to make this specific proviso has frequently resulted in trouble that has cost an inexperienced manufacturer a customer.

"C. i. f." and "F. o. b." Quotations.

It is almost invariably desirable to quote prices c.i.f., if possible to do so. This expression signifies cost, insurance and freight and indicates the whole cost to the buyer on board ship in his port, or nearest port. Manufacturers who know the weight and measurement of specific quantities of certain goods or can guess at them closely need have no difficulty in making such quotations.

Given factory costs, extras, rail freights, cartages, &c., can easily be figured or estimated, quotations of ocean freight rates obtained and computed and insurance and exchange covered. A c.i.f. quotation, for obvious reasons, appeals to the foreign customer with 10 times the force of a quotation at factory, providing it is reasonably and intelligently calculated.

F.o.b. is growing more and more to be an expression of very doubtful interpretation. F.o.b. (free on board) properly ought to mean in the case of foreign shipments, on board of outgoing ocean steamer. It is commonly used by hundreds of manufacturers to indicate free on board railroad cars at factory, without special observations to that effect. Sometimes the reading is "f.o.b. New York," which in turn is blind, meaning either that freight only is paid to New York, or that the goods are actually delivered on board of steamer without charge for cartage. When f.o.b. quotations are made they should definitely state whether free railroad at factory, or freight only paid to New York, or whether put free on board vessel.

Cable Correspondence with Foreign Customers

is frequently necessary, involving, first, the selection and registration of an abbreviated address and, secondly, a careful study of cable codes and usually the coding of all articles in a catalogue. This subject is one that can only be satisfactorily worked out by the individual manufacturer or his export manager. If the latter is located in New York, where he properly belongs, the New York address should be that selected for foreign telegraphic service.

(To be continued.)

The Hardware stock of Chas. Decker Company, Brockport, N. Y., was recently damaged by smoke and water as the result of fire. The loss was fully covered by insurance.

THE RICHMOND CONVENTIONS.

Concluding Report.

THE seventeenth annual convention of the Southern Hardware Jobbers' Association and the twelfth semiannual convention of the American Hardware Manufacturers Association were held jointly at the Jefferson Hotel, Richmond, Va., June 11 to 14, inclusive. The opening session, attended by jobbers and manufacturers, was held on Tuesday morning, as noted in our last issue, in which we presented the papers read during the conventions, by Robert Garland, Garland Nut & Rivet Company, Pittsburgh, on "Should Not Hardware Jobbers Anticipate Their Requirements?" by G. H. Jantz, American Wringer Company, New York City, on "What Constitutes a Hardware Jobber?" by J. C. Sproull, Anniston Hardware Company, Anniston, Ala., on "Uniform Cash Discount," and by Ben. J. Schuster, Selma, Ala., on "Why a Jobber Should Sell at Net Prices Instead of Discounts."

The meeting was called to order by President F. B. Dunlop of the Jobbers' Association. A very cordial welcome to Richmond was extended by Mayor Carlton McCarthy.

Mr. Asbury's Address.

In the afternoon the manufacturers met in executive session. President C. W. Asbury, in an excellent address, reviewed the work of the association since the annual meeting at Atlantic City, dwelling particularly on the abuses by some jobbers on the deduction of cash discounts much beyond the time limits. Many jobbers, he said, frankly expressed their approval in different ways of the position assumed by the manufacturers in this important matter and placed themselves on record as favoring a strict enforcement of the prescribed terms of payment. Mr. Asbury also alluded to other departments of the association's work, and the announcement was made that in the future circular letters relating to matters of interest to the members of the association would be sent out periodically.

Secretary Mitchell's Report.

F. D. Mitchell, the efficient secretary of the association, in his report called attention to the much larger current membership and stated that the organization, financially, was in excellent condition and on a sound basis.

Transportation Questions.

At the joint session Wednesday afternoon Mr. Asbury in introducing President W. W. Finley of the Southern Railway, referred to a previous address before the same association on kindred matters two years ago. Mr. Finley read an able paper on "The Railroad Question as Viewed by a Railroad President," in which the subject was admirably treated in a businesslike, logical way, his views embodying largely similar data previously delivered in Memphis and elsewhere.

John Donnan of the W. S. Donnan Hardware Company, the new president of the Southern Jobbers' Association, took up the cudgels of transportation from the standpoint of the suffering merchant, making an excellent presentation of the many moot questions, in the course of which he quoted liberally from previous statements by Mr. Finley of his position.

Both papers made an excellent impression, and it was unanimously resolved that both documents be made a part of the association's records.

T. James Fernley's Address.

T. James Fernley, in an interesting address on jobbers' organizations and what they had accomplished, stated that, with possibly one exception, he had attended all the meetings of the Southern Jobbers since his election as secretary-treasurer of the National Hardware Association, about 13 years ago. He also alluded to the fact that a number of the members of the Southern Association were members of the national organization, and extended congratulations on the large attendance and interest shown in the proceedings.

Additions to Southern Membership.

The following additions to the membership of the Southern Hardware Jobbers' Association were reported: Carolina Hardware Company, Richmond, Va.; Southern Hardware & Supply Company, Mobile, Ala.; Avery Hardware & Supply Company, Pensacola, Fla.; Nash Hardware Company, Fort Worth, Texas; Orgill Brothers & Co., Memphis, Tenn.

New Officers of the Southern Association.

The following are the new officers chosen by the Southern Hardware Jobbers' Association for the ensuing year: **PRESIDENT**, John Donnan, W. S. Donnan Hardware Company, Richmond, Va.

FIRST VICE-PRESIDENT, W. L. Sanford, Roberts, Sanford & Taylor Company, Sherman, Texas.

SECOND VICE-PRESIDENT, H. B. Miller, Barnes & Miller Hardware Company, Memphis, Tenn.

SECRETARY-TREASURER, W. W. Webber, Webber-Ayers Hardware Company, Fort Smith, Ark.

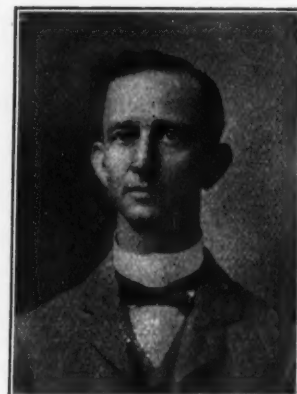
EXECUTIVE COMMITTEE, O. B. Barker, Barker, Jennings Hardware Company, Lynchburg, Va.; Charles H. Ireland, Odell Hardware Company, Greensboro, N. C.; Bruce Keener, C. M. McClung & Co., Knoxville, Tenn.; W. A. Parker, Beck & Gregg Hardware Company, Atlanta, Ga.

Jobbers' Next Meeting.

Representatives of Chattanooga, Tenn., were present and addressed the convention, urging the suitability of



JOHN DONNAN,
Newly Elected President
S. H. J. A.



W. L. SANFORD,
Newly Elected Vice-President
S. H. J. A.

that city, with its great improvements and two new large hotels in course of erection and offering many inducements to the association to meet at that point. The claims of Little Rock, Ark., as a convention city were also set forth by a committee. The usual course was adopted of leaving the matter of selection of a city for the next annual meeting to a committee, which will confer with the American Hardware Manufacturers' Association.

Manufacturers' Resolutions.

The resolutions adopted by the Manufacturers' Association were as follows:

Whereas, The terms of payment of a large proportion of our members provide a cash discount if paid within a stated period; and

Whereas, Sometimes in the past the cash discount has been allowed when remittances have not been received by the seller within the agreed period; hence some buyers have not regarded it necessary to conform to the terms stipulated, and this laxity has resulted in disadvantage to all.

Resolved, That the association urges all members to refuse to allow cash discounts unless the remittances are strictly in accordance with the terms of purchase;

Resolved, That it is not sufficient excuse for allowing cash discount after the prescribed limit has expired because the goods have not reached destination;

Resolved, That it is understood each member will report to the secretary any violation of these resolutions for such action as is deemed advisable;

Resolved, That all members are requested to send a copy of these resolutions to their customers.

Resolved, We extend a vote of thanks to the manufacturers of Richmond and their ladies, who so royally entertained our ladies at the Country Club Wednesday afternoon.

Resolved, That inasmuch as checks drawn on local banks are often subject to exchange charges for collection, our customers be requested to remit in funds at par at place where remittance is to be received; and be it further

Resolved, That copies of this resolution be forwarded to the Southern Hardware Jobbers' Association and to the National Hardware Association through their respective secretaries.

Resolved, That Article XI of the Constitution and By-Laws be amended by striking out the words: "Subject to approval of a majority of the Executive Committee," so that the article shall read: "Article XI. Standing Committees. The following standing committees shall be appointed by the president, to serve for one year or until their successors are appointed: Membership Committee, of nine members; Entertainment Committee, of five members; Grievance Committee, of five members; Freight Committee, of five members, and Credentials Committee, of five members, and the Executive Committee is authorized to pay the necessary expenses of such committees."

Jobbers' Resolutions.

The Southern Hardware Jobbers' Association's Committee on Resolutions reported the following, which were adopted:

Resolved, That we extend to F. B. Dunlop, president, and W. W. Webber, secretary-treasurer, and officers of the association, including the Executive Committee, our hearty thanks for their faithful services during the past year.

Resolved, That we extend to the Entertainment Committee, through its chairman, Irby Bennett, our sincere thanks for the many pleasurable features provided for the members of this association and its guests, that have contributed so much toward making our leisure moments enjoyable, and especially the very delightful banquet which proved to be so enjoyable as well as entertaining.

Resolved, That we cordially thank Henry H. Beers for the filial and genial manner in which he has met the problems involved in the duties of the sergeant-at-arms of this organization, and to commend his zeal in assembling our business sessions.

Resolved, That we greet with much pleasure the attendance of A. J. Bihler of Pittsburgh, a member of the Executive Committee of the National Hardware Association.

Resolved, That a hearty vote of thanks be extended to the management of the Jefferson Hotel for the efficient manner in which they have provided for our comfort and to assure them that we carry only pleasant memories for this session of the convention.

Resolved, That we extend to the ladies in attendance upon our convention a vote of thanks, and take this occasion to again express our appreciation for the inspiration and sunshine and good influence so gently but efficiently exercised during the leisure part of our convention.

Resolved, That we most heartily enjoyed the very close intercourse and evidence of friendship and good-will extended the Southern Hardware Jobbers' Association by the American Hardware Manufacturers' Association, and assure them of our appreciation and venture the hope that as these annual conventions come and go that these relations may become stronger and the mutual interest of one to the other may become more apparent to both, and express the desire that our relations may be cordial and beneficial.

Resolved, That the members as well as the ladies and invited guests thank the Hardware jobbers of Richmond for the most delightful entertainment given by Polk Miller Wednesday evening, with his celebrated plantation dialogue and coon songs as sung by the negro quartette.

Resolved, That the members also wish to thank the Hardware manufacturers of Richmond for the enjoyable entertainment extended to the ladies on Wednesday afternoon at the Country Club.

Resolved, That we express our thanks to the trade papers which are represented at this convention, recognizing their importance to us. We cordially invite them to be present at all of our future conventions, and solicit their aid and counsel.

Resolved, That we express our thanks to the Western Union Telegraph Company and the Postal Telegraph Cable Company for the free use of their wires during the sessions of the convention.

Entertainment.

The Committee on Entertainment of the Jobbers' Association provided liberally for the entertainment of members of both associations and the ladies accompanying them. The trolley ride to the Lakeside Country Club included a luncheon and a visit of between three and four hours. Then there was an informal hop in the hall on Tuesday night. The entertainment provided by Polk Miller, a Richmond merchant, assisted by four colored singers, was exceptionally good and thoroughly appreciated by all.

The trip to Jamestown and the Exposition was well handled, and by good fortune occurred on the only pleasant day of the entire convention period. A large company availed themselves of the opportunity to visit the

Ter-Centennial Exposition. The guests were transported by special train to Newport News, where a roomy steamer of the Old Dominion Line was waiting to take the party for a three hours' sail among the war vessels anchored in Hampton Roads, continuing well down toward Cape Henry. The turn was made in time to land at the Exposition grounds at 2.15 p.m., lunch having been served during the trip aboard the steamer. After four hours at the Exposition the return trip was begun, Richmond being reached about 10.30 p.m.

The Disposition of Manufacturers to Encourage Jobbing at Places Not Recognized as Jobbing Centers.

The following paper on the above subject was read by T. G. Ewing, Ewing Hardware Company, Gadsden, Ala.:

Let us first define a jobber. A jobber is one who buys goods from factories and carries the large assorted stock of merchandise that makes up the Hardware business of to-day, and distributes this merchandise to the merchant trade through a number of regularly employed traveling salesmen.

Direct Dealings with Manufacturers.

There are some good business men among the retailers in small places, and they are at all times trying to buy goods direct from manufacturers, and when their letters are received at factory, if their rating is satisfactory, Mr. Manufacturer has the goods (or expects to have them some day), never stops to think about Mr. Jobber, whom he has probably loaded up on his line, but dictates a letter to Mr. Dealer, quoting a line of prices, 5 dozen, 50 per cent.; 25 dozen, 50 and 10 per cent., 50 cents freight allowance. The dealer in order to secure the lowest price will order enough goods of one kind to last him for two years' ordinary sales. He gets these goods in his house, the country merchant is at once advised that he can sell them some items as low as any one, he unloads the surplus stock at probably 5 to 7½ per cent. profit; or, if he fails to get them off on his neighbor merchant, the consumer gets a very low price, a price the neighbor merchant cannot compete with and buy the goods from a legitimate jobbing house.

The Complaints Begin to Pour In

to the traveling salesman, John Smith is selling Axes for less money than you quote them to me. The traveling salesman calls on Mr. Dealer and quotes prices on staple and shelf items. Mr. Dealer draws himself to full height, looks wise, and says: "I like you all O. K., but your prices are all out of line. Would like to give you an order, but I am buying these goods direct from factory." Occasionally one will show his invoice, and, true enough, his price is within 2½ to 5 per cent. of what the jobber has paid. For a jobber to regularly meet such competition would soon result in business suicide. However, he frequently does meet the price quoted by the manufacturer, and then urges a concession from the manufacturer. Is this not one of the causes of low prices demanded by jobber from manufacturer?

This year one of the Plow manufacturers quoted his goods by postal card to every small store in the South at a price a lot of jobbers did not get. These things cause the jobbers' traveling men to complain, say they cannot sell goods against such prices. Of course Mr. Manufacturer, who is taking life easy, living luxuriously, with never a worry or a trouble of any kind, does not think about how much trouble he is making some poor overworked jobber several hundred miles away. Some of the largest manufacturers in this country are not satisfied with selling the recognized jobber, but will sell him one to two carloads of their goods, and go to the next town, 15 to 20 miles away, and sell the dealer one-fifteenth part of a car within 5 per cent. of price sold the jobber.

We do not know whether this could be termed a disposition of manufacturers to encourage jobbing at places not recognized as jobbing centers, or not. We do know it is very demoralizing to a jobber who is trying to make an honest profit on his business. Frequently a traveling salesman will drop in to the store and want to show his line, and is honest enough to tell you they only have one price to all, retailer or jobber. These people cater to the retail trade.

The Territory of the Jobber Is Being Invaded

by the manufacturer more and more as the years go by. Of course this does not apply to all manufacturers, for there are a number of them who believe the jobber to be the most economical medium of distribution.

My friends, my opinion is the jobbers of this country must get busy and work harmoniously with the manufacturers and try to persuade them to keep hands off our territory, or we will have to step out and surrender

the trade we have all worked so hard for these many years. Of course there would be nothing left for the jobber to do, so he would be compelled to go into manufacturing or catalogue house business. This would be a calamity, as it would break up the Hardware jobbers' conventions. Some of the boys would be deprived of the pleasure of meeting old friends and customers, and looking through smoked glasses to see the sun eclipsed.

There are a few retailers in Alabama who buy some staple lines in car lots direct from the manufacturer, at prices same as jobbers pay. The goods are sold to the small merchant and consumer all alike, always at a less profit than any recognized jobbing house could afford to sell them. This kind of business is an injury to the jobber.

Mr. Manufacturer, You Must Remember

it costs the jobber of this country from 12½ to 15 per cent. to act as distributing agent for you. And this is less than it will cost you to distribute your own goods. We ask that you find out who are jobbers before naming the price. You must not think that you can get along without the jobbers, as they are working every nook and corner, selling all the small dealers and taking all the risk. Of course, you take a risk on the jobber, but it is small compared to the risk the jobber takes on all the small merchants of the country, numbers of them with ratings less than \$1000.

The Essential Elements of a Credit Man.

The paper on "The Essential Elements of a Credit Man," read by R. D. Warren, Memphis, Tenn., was in part as follows:

Money is queer stuff. The opposites meet in it so strikingly. It may be the most cruel, exacting tyrant or the most faithful, intelligent servant.

Whether the goods in our shelves are turned into the money tyrant or money servant depends largely upon the man we have at the head of our credit department, and upon this man depends largely the success of our entire business. He must be a man of strength or power—power to systematize—strength to revolutionize, if needs be, our entire credit department.

The First Essential

of an up to date systematized credit department would be a complete set of filing cases for all credit information. These will naturally take the form of the envelope or card filing system. To the credit man a complete set of files with accompanying information are just as essential as books to the lawyer or tools to the mechanic.

In these files are kept a record of each customer, including all information gained from the mercantile agencies and other sources of information. Upon this knowledge you will see that the credit man must usually form his opinion and give credit, not on his own actual knowledge, but upon information given by others, whereas the banker or money lender, especially in our smaller cities, bases his line of credit on collateral offered of known worth, or upon the actual and known worth of the creditor. Of course, we know our larger banking institutions doing business over large extended territory have their regular, equipped credit departments, whose heads stand in the same relation to the bank's management as our credit man does to our business. But more often than otherwise, the credit man must form his estimate of the man, firm and company from these records, hence he must have power to estimate a risk at long range. While financial ability should be amply weighed,

Capacity, Character and the Moral Risk

are large factors in the final decision. More than 90 per cent. of the world's business is done upon credit or upon faith, and I doubt if there has ever been an age of the world when so much weight was given by our banks and credit departments to the moral risk of the creditor. This is as it should be, and I am glad it is a fact that no one will deny who is fully in touch with what we will call the great faith system of our commercial life. This moral risk being rightly given such weight, our ideal needs to have his share of this moral fiber in himself or he will fail to recognize it when he comes in touch with it in his creditor.

Now, I do not want to be misunderstood here. I do not pretend to argue the world commercially is growing so much better in the moral fiber that goes to make up the rank and file of those following commercial pursuits. The records of our bankrupt courts are too strong arguments on the other side. But I do maintain that like as in the mental and spiritual world the Lord is calling the few out to special work, so, the complex conditions surrounding our commercial life are calling into play in the individual the strongest and best moral elements of which the human race is capable. Hence, our credit man should have

Power to Read Human Nature

and the ability to "size up a man," power to weigh all information at hand, and be able to say if his wouldbe creditor has capacity. Does he possess the elements or requisites to make a winner, or the ability to do business at a profit? I believe I state a fact when I say we lose by far more money through incompetency of our debtors than from any other cause. We frequently hear the remark about some professional man that he ought to be plowing—and 't is true 't is pity; and pity 't is 't is true"; but, my friends, all these misfits have not sought to get into public life. In our section by far the most of them have gone into the mercantile business, thereby adding large burdens to the duties of our credit man and tax to our business.

Incompetency and Dishonesty

are not synonymous terms by any means, but they end at about the same point, with loss of some one's money—hence, if possible, the credit man will always seek an interview with his wouldbe customer, have a frank, confidential talk with him, listening all the time to know if he rings true. Notwithstanding the apparent truth of the statement that the thief's ability to look you in the eye while he makes plausible statements is part of his stock in trade, still, the observing credit man is able to divine the line between sincerity and dissembling, and by his own open manner do much to win the confidence of the honest man and disarm the dissembler.

Having once given a line of credit, we should not alone live up to the limit of this agreement; we should just as definitely require the debtor to honestly and justly keep his share of the contract.

The hand of the customer is sometimes stricken with a kind of palsy, and he is unable to extract the money due from his pocket. But a frank, firm talk from our genial model soon overcomes the palsy, and out comes the hand with the potent yellow gold.

Who can understand the radiation of personal power over long range customers with nothing to transmit it but cold, black type? Yet some men radiate such power as to bring the crisp, yellow back bills out of the barren places and to overcome the pen paralysis which prevents the signing of the name to our overdue checks.

Power as a Collector.

In other words, one of the most essential characteristics of the credit man is his power as a collector. Other things being equal, the best collector is the best credit man. This means for the credit man an indomitable amount of energy and power to work. The success of the credit department requires of its head as many hours of downright hard work as any department. The prompt notice from this department to all debtors of the maturity of all accounts and bills receivable and definite and continued renewal of these notices until the indebtedness is settled, is in its results the *sine qua non* of the credit department.

But while energy, indomitable will and physical strength will overcome obstacles, and men thus dominated have become giants of commercialism, the credit man needs more. He must have adroitness in adapting word or action to the circumstances—in other words, that rare, subtle characteristic called tact.

Tact and Courtesy

should always mark him. It is easy enough to be courteous to the capitalist or any other successful man, but to refuse to give or extend a line of credit, and to do it in such a way as to retain the good will of the man, that is tact. A business house once issued a card bearing this inscription: "Be decent to the under dog, he may be on top to-morrow." The tactful man will be decent to the under dog, but in such a way as to help him, if possible, to be on top to-morrow.

Some one has said that "Keep the customer" is the one command which embraces the whole business decalogue. Where customers number thousands it is very easy for the hundredth buyer to drop out and you not miss him unless his account is a large one. Every customer cut adrift by a grievance unadjusted becomes a charge on the future business—a negative advertising.

Nothing Mean About the Competent Credit Man.

Here the strength of the credit man is shown. He should have the power of adapting himself to the viewpoint and personalities of the purchasers, and by judicious adjustment of even the small grievances, if possible, prevent the floating adrift of the customer, which means a loss of potential profit and the advertising his good will represents. Much of this work of the credit man must of necessity be done by his assistants, but his personality and foresight must be behind it and his finger all the time on the button. Thus you see the credit man ought not to be the mean man of the institution, although he is sometimes classified as such.

He must believe in every creditor of the firm just as far as his line of credit based on his assets and moral risk entitles him to. It is a great tax on him physically, mentally, and morally to meet cheerfully the demands on him. Surely we do not want a weakling at the head of our credit department! But where shall we find this all-around man—this man of "parts," as the Scotch would say?

Get the Strongest Man Possible

for the head of this department, but do not be discouraged if he does not have all the essentials of the successful credit man. He may need a little toning up here and a little toning down there; he may fall short of the ideal, but if he shows the leading characteristics train him up until he approaches the ideal.

The Banquet.

The banquet, given jointly under the auspices of the American Hardware Manufacturers' Association and the Southern Hardware Jobbers' Association, was held in the large convention hall of The Jefferson on Thursday evening. The table decorations were red roses. An orchestra rendered instrumental selections, which were supplemented with the singing of "America," "Star Spangled Banner" and "Auld Lang Syne" by the company at appropriate intervals, the words of the songs being printed in the souvenir banquet programme. The programme was a tasteful four-leaf booklet bound in limp green leather, the cover of which was embossed with appropriate emblems.

When cigars were served Irby Bennett, chairman of the Entertainment Committee, who presided, in a few well chosen remarks felicitated the guests on their presence. As an actual participant in all of the 16 preceding conventions, he pronounced the seventeenth the most successful of all in practical work accomplished, and attributed much of the success of the meetings to the support of the Manufacturers' Association, referring especially to the pleasant and cordial relations between the tow bodies, which he hoped would continue.

Mr. Bennett then introduced N. A. Gladding of E. C. Atkins & Co., who officiated as toastmaster and welcomed the guests. Mr. Gladding in fitting manner made reference to the little company which sailed from old England three centuries ago and landed at Jamestown Island, about 35 miles above the mouth of the James River, where a colony was established, to be followed later by the founders of the Richmond colony, sketching as he proceeded various features of general interest.

F. B. Dunlop, president of the Southern Hardware Jobbers' Association, was then presented and made an eloquent address. He was followed by Charles W. Asbury, president of the American Hardware Manufacturers' Association, who made a forceful argument relative to labor, pleading for more liberality in the immigration laws as they relate to skilled workmen, with which to relieve the tension in factories long literally choked with orders that cannot be promptly executed because of a dearth of such workmen. He tersely reviewed comparatively recent labor legislation, sketching briefly the facts relative to existing laws which in his opinion require intelligent modification.

The toast, "Federal Aid to Business," was responded to by the Hon. Jesse Overstreet, chairman of the Committee on Post Offices and Post Roads, who is now serving his seventh term in the House of Representatives. His address was an able presentation of this phase of assistance properly obtainable from the Federal Government. Mr. Overstreet referred to the necessity for cultivating a larger export trade, desirable always, but especially beneficial when there is great contraction in the absorbing power of the home market.

The next toast was "Southern Conditions," assigned to former Gov. A. J. Montague of Virginia. The subject was ably treated in a forceful way and was full of good logic and practical sense. Reference was made to two pending treaties between the United States Government and Great Britain and Germany for the registration of trademarks and patents, which in his opinion will be of great value when our trade increases, as it should greatly in the future. Manufacturers and others interested were cautioned to keep in touch with these treaties

and give the matter the attention its importance deserves.

The last address was by Thomas Nelson Page, the lawyer-author, whose acceptance of the invitation to speak was received too late to be given a place on the printed programme. Mr. Page delivered a charming address which was very much enjoyed.

Souvenirs.

The manufacturers with customary generosity provided souvenirs which were distributed throughout the conventions. Some, like decorated plaques and bird carvers, were given mainly to the visiting ladies, while cigars appropriately put up were furnished to the men. The souvenirs were as follows:

JOHN CHATILLON & SONS COMPANY, New York: Four-blade decorated bronze handle Pocket Knife in leather case.
NATIONAL ENAMELING & STAMPING COMPANY, New York: Enamelled Milk Pail and Tea Strainer.
RUSSELL & ERWIN MFG. COMPANY, New York: Thermometer in old brass.
STANDARD CHAIN COMPANY, Pittsburgh: Oxidized silver Watch Fob.
FOSTER BROS. & CHATILLON COMPANY, Fulton, N. Y.: Stag handle Bird Carver, presented to the ladies.
NORTH BROS. MFG. COMPANY, Philadelphia: Miniature Screw Driver for tightening screws in eye glasses.
MCCAFFREY FILE COMPANY, Philadelphia: Manicure File.
MILLER LOCK COMPANY, Philadelphia: Black enameled Padlock.
MERIDEN CUTLERY COMPANY, Meriden, Conn.: Pearl manicure Nail Cleaner.
AMERICAN WRINGER COMPANY, New York: Flexible black leather memorandum book.
L. W. STEWART, Cincinnati, Ohio: Wire Fly Killer.
COLUMBIAN ENAMELING & STAMPING COMPANY, Terre Haute, Ind.: Leather card case and memorandum book and miniature enameled Wash Basin.
LIVERIGHT BROS., Philadelphia: Pocket manicure File.
ACME WHITE LEAD & COLOR WORKS, Detroit, Mich.: Paper Weight in form of small can of Paint.
AMERICAN CAN COMPANY, New York: Decorated and enameled bond box.
STANDARD TOOL COMPANY, Cleveland: Penholder of black hard rubber in form of Twist Drill.
GRAHAM NUT COMPANY, Pittsburgh: Pocket memorandum book.
AMERICAN SHEET & TIN PLATE COMPANY, Pittsburgh: Two handsomely decorated plaques for the ladies and enameled hinged cover box containing 12 cigars for the men.

Exhibits.

The W. A. Ives Mfg. Company, Wallingford, Conn., and 299 Broadway, New York, represented by J. E. Watson, treasurer of the company, displayed in a room of the Jefferson examples of its products in various styles and sizes of Auger Bits and Bit Braces.

The Coldwell Lawn Mower Company, Newburgh, N. Y., exhibited eight sizes and styles of Lawn Mowers for hand use.

The Cameron Stove Company, Richmond, Va., exhibited examples of Wrought Steel Ranges, Stoves and similar products.

JOBBER'S PRESENT.

The registered attendance of jobbers, very many of whom were accompanied by ladies, was as follows:

Allen Hardware Company, Charlotte, N. C., D. E. Allen.
Allen & Jemison Company, Tuscaloosa, Ala., M. P. Jemison.
Anniston Hardware Company, Anniston, Ala., J. C. Sproul.
Anderson Hardware Company, Atlanta, Ga., Harvey L. Anderson.
Asheville Hardware Company, Asheville, N. C., N. R. Elbertson.
Avery Hardware & Supply Company, Pensacola, Fla., A. M. Avery.
Barker-Jennings Hardware Company, Lynchburg, Va., O. B. Barker.
Barnes & Miller Hardware Company, Memphis, Tenn., H. B. Miller and W. F. Stephenson.
Beck & Gregg Hardware Company, Atlanta, Ga., W. C. Holleyman.
Benedict, Warren, Davidson Company, Memphis, Tenn., R. D. Warren and G. S. Davidson.
Bering-Cortes Hardware Company, Houston, Texas, H. W. Cortes.
Bluefield Hardware Company, Bluefield, W. Va., C. B. Hancock and E. A. Leonard, Jr.
Charlotte Hardware Company, Charlotte, N. C., R. L. Erwin.
Charleston Hardware Company, Charleston, W. Va., P. W. Flournoy.
De Haven-Dawson Supply Company, Chester, S. C., G. K. Dawson.
Dinkins & Davidson Hardware Company, Atlanta, Ga., S. C. Dinkins.
W. S. Donnan Hardware Company, Richmond, Va., John Donnan and W. S. Donnan.
Ewing Hardware Company, Gadsden, Ala., T. G. Ewing.
Fones Bros. Hardware Company, Little Rock, Ark., James Mandelbaum and J. Van Dokkum.

Fox Bros. Hardware Company, Pine Bluff, Ark., F. L. Fox.
 N. S. Fulford Hardware Company, Washington, D. C., N. S. Fulford and Frank H. Bryan.
 John E. Gannaway & Co., Lynchburg, Va., John E. Gannaway.
 Griffin Hardware Company, Rome, Ga., W. J. Griffin.
 Heath Hardware Company, Monroe, N. C., W. C. Heath, James T. Griffith and James A. Stewart.
 F. W. Heltmann Company, Houston, Texas, F. A. Heltmann.
 House-Hasson Hardware Company, Knoxville, Tenn., Sam C. House.
 Kane & Keyser Hardware Company, Belington, W. Va., J. E. Keyser.
 Knight & Wall Company, Tampa, Fla., S. N. Honaker and J. G. Anderson.
 Charles Leonard, Petersburg, Va., Frank M. Hobbs.
 C. M. McClung & Co., Knoxville, Tenn., Bruce Keener.
 Maroney Hardware Company, Dallas, Texas, James Maroney.
 Marshall-Westcoat Hardware Company, Charleston, S. C., J. R. Robb.
 F. P. May Hardware Company, Washington, D. C., F. P. May.
 Miller Supply Company, Huntington, W. Va., J. C. Miller.
 Mitchell-Powers Hardware Company, Bristol, Va., J. D. Mitchell.
 Moore & Handley Hardware Company, Birmingham, Ala., J. D. Moore and William P. Moore.
 Monroe Hardware Company, Monroe, La., George G. Weeks.
 Nash Hardware Company, Fort Worth, Texas, Chas. W. Nash.
 Nelson Hardware Company, Roanoke, Va., George G. Moore.
 Norton Hardware Company, Norton, Va., H. E. Hyatt.
 Perrow-Evans Hardware Company, Lynchburg, Va., R. M. Perrow.
 Piedmont Hardware Company, Danville, Va., James Spencer.
 H. M. Price & Co., Mobile, Ala., H. M. Price.
 Richmond Hardware Company, Richmond, Va., R. E. V. Farrar, M. H. Isbell, W. D. Stuart and S. H. Wilkinson.
 Rome Hardware Company, Rome, Ga., B. T. Haynes.
 Rose-Lyon Hardware Company, Little Rock, Ark., C. O. Rose.
 Ben. J. Schuster, Selma, Ala., Ben J. Schuster.
 Spear Hardware Company, Fort Smith, Ark., F. B. Dunlop.
 Southern Hardware & Supply Company, Mobile, Ala., H. Young.
 Stauffer, Eshleman & Co., New Orleans, La., S. St. J. Eshleman.
 Sullivan Hardware Company, Anderson, S. C., W. W. Sullivan and J. W. Sullivan.
 Teague & Sons, Montgomery, Ala., W. M. Teague, Jr.
 Virginia-Carolina Hardware Company, Richmond, Va., John B. Pinder, W. S. Pinder and John S. Ellett, Jr.
 Virginia-Tennessee Hardware Company, Bristol, Tenn., W. J. Finkle.
 Vordenbaumen-Eastham Company, Shreveport, La., H. Vordenbaumen.
 Webber-Ayers Hardware Company, Ft. Smith, Ark., W. W. Webber.
 Weddington Hardware Company, Charlotte, N. C., J. H. Weddington.
 Williams-Davison Company, Clarksburg, W. Va., J. W. Williams.
 Wright Bros. Hardware Company, Vicksburg, Miss., C. G. Wright and C. R. Wright.

MANUFACTURERS PRESENT.

There was a very large representation of manufacturers at the convention. Among those registered were the following:

American Axe & Tool Company, Glassport, Pa., W. T. Johnson, John K. Wilson and George P. Wier.
 American Can Company, Atlanta, Ga., E. R. Philip.
 American Cutlery Company, Chicago, Ill., J. H. Keating.
 American Fork & Hoe Company, Cleveland, Ohio, F. S. Kretzinger, H. L. Durell and C. H. Windt.
 American Pulley Company, Philadelphia, Pa., H. P. Chenoweth.
 American Screw Company, Providence, R. I., Wm. G. Smythe and George F. Baker.
 American Sheet & Tin Plate Company, Pittsburgh, Pa., W. T. Shannon, H. M. Shepler, J. I. Andrews, Howard M. Davis, J. R. Mills, Jr., and T. Vaughn Stapler.
 American Steel & Wire Company, Chicago, F. Baackes, T. H. Taylor, D. A. Merriman and T. B. Coles.
 American Wringer Company, New York, G. H. Jants and S. Bradley.
 Oliver Ames & Sons Corporation, N. Easton, Mass., J. P. Tabb.
 Ames Shovel & Tool Company, Boston, F. R. Charles and S. S. Early.
 Atha Tool Company, Newark, N. J., Ed. Ingalls.
 E. C. Atkins & Co., Indianapolis, Ind., N. A. Gladding, G. B. Stafford and H. P. Hubbard.
 Baeder, Adamson & Co., Philadelphia, Pa., James H. Marshall.
 Baldwin Forging & Tool Company, Columbus, Ohio, R. C. Davis.
 G. & H. Barnett, Philadelphia, Pa., J. H. Collier.
 Barrett Mfg. Company, New York, A. E. Chevalier.
 Bemis & Call Hardware & Tool Company, Springfield, Mass., J. C. Beggs.
 Buchanan-Foster Company, Philadelphia, Pa., C. S. May.
 Cambria Steel Company, Johnstown, Pa., Wm. K. Stone.
 Carnegie Steel Company, Pittsburgh, A. M. Harper, Duncan Bruce and F. A. Dilworth.
 Carver File Company, Philadelphia, Pa., Jos. M. Hottel.
 Challenge Cutlery Corporation, Bridgeport, Conn., A. R. Schmets.
 John Chatillon & Sons, New York, L. A. Tranberg, J. A. Foster, D. A. Schnebel and D. P. Hale.
 Columbian Hardware Company, Cleveland, Ohio, Ludlow S. Sherwood and L. A. Dade.
 Coldwell Lawn Mower Company, Newburgh, N. Y., E. C. Ross.

P. & F. Corbin, New Britain, Conn., Charles B. Parsons, John W. Ryan and George L. Haven.
 Corbin Cabinet Lock Company, New Britain, Conn., W. H. Booth and J. T. Powell.
 Corbin Screw Corporation, New Britain, Conn., Charles Glover, C. A. Earl and C. W. Griswold.
 Cronk & Carrier Mfg. Company, Elmira, N. Y., C. F. Carrier and L. L. Ennis.
 Crucible Steel Company of America, Pittsburgh, Thomas E. Parrnell.
 Daisy Mfg. Company, Plymouth, Mich., E. C. Hough, C. H. Bennett and E. C. Hough.
 Dana Mfg. Company, Cincinnati, George F. Dana, Fred M. Snook.
 Diamond Saw & Stamping Works, Buffalo, N. Y., G. P. Lowry.
 Dover Mfg. Company, Canal Dover, Ohio, Charles T. Johnson.
 E. I. du Pont de Nemours Company, Wilmington, Del., Geo. S. Parkes, J. Finley Van Lear and E. C. Ferriday.
 Benj. F. Dunlap, Belvidere, Ill.
 Theo. J. Ely Mfg. Company, Girard, Pa., Theo. J. Ely.
 Enterprise Mfg. Company, Philadelphia, Pa., C. W. Asbury.
 Garland Nut & Rivet Company, Pittsburgh, Robert Garland.
 Globe Mfg. Company, Taunton, Mass., J. A. Welch.
 Goodell Company, Antrim, N. H., A. W. Bond.
 Graham Nut Company, Pittsburgh, Charles J. Graham.
 Griffin Mfg. Company, Erie, Pa., James C. Griffin and W. S. Robertson.
 Hamilton Rifle Company, Plymouth, Mich., W. B. Penfield.
 Harriman Mfg. Company, Harriman, Tenn., W. A. Rockwell.
 Harrington & Richardson Arms Company, Worcester, Mass., Wm. Cauler.
 Heller Bros. Company, Newark, N. J., Paul E. Heller.
 Hemp & Co., St. Louis, Mo., J. K. Hemp.
 Hopkins & Allen Arms Company, Norwich, Conn., Edward E. Perry, Wm. E. Perry, Thomas O'Brien and Charles B. Lee.
 Hussey-Binns Shovel Company, Pittsburgh, Joseph H. Grubb.
 W. A. Ives Mfg. Company, Hamden, Conn., J. E. Watson.
 C. E. Jennings & Co., New York, T. W. Gathright.
 Iver Johnson's Arms & Cycle Works, Fitchburg, Mass., Frank I. Clark and W. A. Shepard.
 Jones Hollow-Ware Company, Baltimore, Md., L. S. Graham.
 Kelly Axe Mfg. Company, Charleston, W. Va., George T. Price and W. B. Lockett.
 Keuffel & Esser Company, New York, A. E. Weltl.
 Kilbourne & Jacobs Mfg. Company, Columbus, Ohio, Fred W. Hubbard.
 Landers, Frary & Clark, New Britain, Conn., F. A. Searle and G. B. Nichols.
 Liveright Bros., Philadelphia, Pa., Arthur K. Liveright.
 Lockwood Mfg. Company, Norwalk, Conn., Geo. E. Eddy.
 McCabe Hanger Mfg. Company, New York, James T. McCabe.
 McCaffrey File Company, Philadelphia, Pa., Joseph J. McCaffrey.
 McKinney Mfg. Company, Pittsburgh, Pa., C. M. King and F. B. Smith.
 Markham Air Rifle Company, Plymouth, Mich., Edward H. Lewis.
 Meriden Cutlery Company, Meriden, Conn., H. A. Curtiss and C. F. Forsyth.
 Millers Falls Company, New York, O. C. Mead.
 Miller Lock Company, Philadelphia, Pa., J. T. Rader and Edward S. Jackson.
 Mundorf Chain Works, York, Pa., Geo. W. Mundorf and John A. Sand.
 National Enameling & Stamping Company, Baltimore, Md., Geo. H. Harper.
 National Supply Company, Baltimore, Md., Harry D. Harvey and Harold Le Roy Harvey.
 New Jersey Wire Cloth Company, Trenton, N. J., Louis G. Beers.
 Nicholson File Company, Providence, R. I., Wallace L. Pond and F. Herbert Smith.
 Norfolk Collar Pad Company, Norfolk, Va., I. L. Margolins.
 North Bros. Mfg. Company, Philadelphia, Pa., A. C. Albrecht.
 Old Dominion Iron & Nail Works Company, Richmond, Va., Arthur B. Clarke and W. J. Orr.
 Oliver Iron & Steel Company, Pittsburgh, Henry Lupton.
 Onelda Community, Limited, Onelda, N. Y., P. B. Noyes and A. M. Kinsley.
 Owosso Mfg. Company, Owosso, Mich., H. L. Markle.
 Peck, Stow & Wilcox Company, New York, T. H. Gossett.
 Peters Cartridge Company, Cincinnati, T. H. Keller.
 Fayette R. Plumb, Incorporated, Philadelphia, Pa., Fayette R. Plumb, Joseph A. Plumb and W. A. Chenoweth, Jr.
 Pittsburgh Steel Company, Pittsburgh, Pa., Wm. Taylor.
 Reading Hardware Company, Reading, Pa., John O. Bereke and T. B. Hendrickson.
 Richmond Cedar Works, Richmond, Va., A. T. Miller and T. K. Parrish.
 Sargent & Co., New York, Geo. F. Wleper, Frank Gulderson and W. E. Gibbins.
 St. Louis Shovel Company, St. Louis, Mo., Julius C. Birge.
 Seneca Chain Company, Kent, Ohio, C. M. Power.
 Savage Arms Company, Utica, N. Y., Harry E. Haynes.
 Simonds Mfg. Company, Fitchburg, Mass., William L. Mayer and J. E. Kelley.
 Standard Chain Company, Pittsburgh, John C. Schmidt and J. Emory Selts.
 Standard Horse Nail Company, New Brighton, Pa., Frederick S. Merrick and G. S. Boutwell.
 Stanley Rule & Level Company, New Britain, Conn., E. A. Cherry, A. W. Peck, Jr., and Robt. N. Peck.
 Stanley Works, New Britain, Conn., A. C. McKinnie and James Hutchinson.

J. Stevens Arms & Tool Company, Chicopee Falls, Mass., F. E. Muzzy.

Southern Stove Works, Richmond, Va., T. S. Carpenter.
Southern Steel Company, Birmingham, Ala., R. D. Carver.
The Tredegar Company, Richmond, Va., G. B. Hobson.
E. K. Tryon, Jr., Company, Philadelphia, Pa., L. W. New.
Tubular Rivet & Stud Company, Boston, Mass., George L. Knight.
Union Fork & Hoe Company, Columbus, Ohio, T. F. Connors.
Union Mfg. Company, New Britain, Conn., Geo. W. Corbin and M. J. Bailey.

Union Metallic Cartridge Company, Bridgeport, Conn., John E. Avery, John S. Sanders and A. H. Meyerhoff.

U. S. Cartridge Company, Lowell, Mass., A. W. Child.
U. S. Hame Company, Buffalo, N. Y., Henry J. Turner.
Upson Nut Company, Cleveland, Ohio, V. A. Moore.
Wm. Vogel & Bros., Brooklyn, N. Y., Will I. Sherwood, John M. Perrins and H. M. Edwards.

Wabash Screen Door Company, Chicago, Ill., W. D. Biggers.
Warren Axe & Tool Company, Ridgway, Pa., H. G. Rehnicker.
Wheeling Corrugating Company, Wheeling, W. Va., A. Q. Moffat.
White Mountain Freezer Company, Nashua, N. H., Lester A. Thurber and Daniel K. Stucki.

Winchester Repeating Arms Company, New Haven, Conn., Irby Bennett and E. G. Drew.

Woodhouse Chain Works, Trenton, N. J., Thomas T. Woodhouse and Oliver B. Surpless.

Wyoming Shovel Works, Wyoming, Pa., Nath. G. Robertson.
Yale & Towne Mfg. Company, New York, A. T. Babcock, J. H. Towne and A. W. Clark.

OTHER VISITORS.

T. James Fernley, secretary-treasurer National Hardware Association, Philadelphia.

Clement M. Biddle, Biddle Purchasing Company, New York City.
T. E. Oliver, Oliver Brothers Purchasing Company, New York City.

Ernest S. Cox, R. K. Carter Company, New York City.
Oliver B. Surpless, Surpless, Dunn & Co., New York City.

J. S. Bonbright, Supplee Hardware Company, Philadelphia, Pa.
A. J. Bihler, Bindley Hardware Company, Pittsburgh, Pa.

Charles H. Wier, Wier & Wilson, Baltimore, Md.
R. E. Wier, Wier Brothers, Baltimore, Md.

W. P. Smith, Mead & Smith, Rogersville, Tenn.
J. W. Pentz, Hardware, New York City.

Daniel Stern, the American Artisan, Chicago.
Daniel T. Mallett, Hardware Dealers' Magazine, New York City

Harry Wise, the Tradesman, Chattanooga, Tenn.
R. R. Williams, The Iron Age, New York City.

Edward H. Darville, The Iron Age, New York City.
S. S. Reckefus, The Iron Age, Philadelphia.

REQUESTS FOR CATALOGUES, &c.

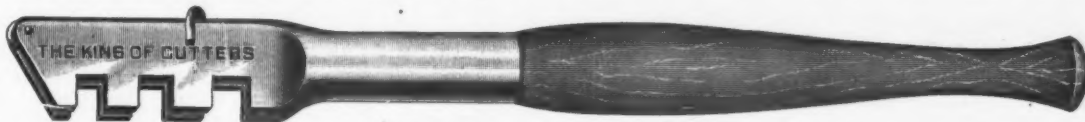
The trade is given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses, with whom manufacturers may desire to communicate:

FROM H. N. FRAZER, who has succeeded to the business of Frazer & Lucas, in Goldendale, Wash., handling Shelf and Heavy Hardware, Stoves, Tinware, Paints, Oils, Sporting and Athletic Goods, Doors, Windows and Glass.

FROM F. P. RUTHERFORD, Rotan, Texas, who is putting in a stock of Hardware, Windmills, Implements, Farm Machinery and subordinate lines.

FROM CATTARAUGUS CUTLERY COMPANY, Little Valley, N. Y., which has just completed arrangements for the erection of a \$25,000 power plant, which it expects to have in operation about October 1. The company is making some changes which will necessitate the purchase of a large amount of machinery and supplies, and accordingly will be glad to receive catalogues, price-lists, &c., relating to Bench Drills and other machinery used in the manufacture of Cutlery, Belting, general Hardware



The King of Glass Cutters.

and Plumbers', Steam Fitters', Electrical and Factory Supplies.

FROM T. V. WEINHOLD, Kansas City, Kan., who is about to open a new store and will deal in Hardware and all allied lines.

FROM THE DORR-PARKER HARDWARE COMPANY, Hoosick Falls, N. Y. George Parker having purchased an interest in the business of C. M. Dorr. The company carry Shelf and Heavy Hardware, Stoves, Tinware, Agricultural Implements, Paints, Oils, Sporting and Athletic Goods.

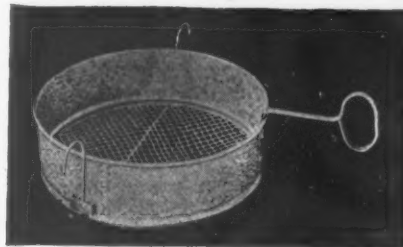
MISCELLANEOUS NOTES.

The Duff Ball Bearing Lifting Jacks.

The Duff Mfg. Company, Pittsburgh, Pa., manufacturer of Barrett ratchet jacks, is placing on the market a new ball bearing lifting jack, which embodies many new ideas and improvements, and which will be manufactured in connection with the Duff roller bearing screw jacks. Some of the principal features of this jack are that the bearings cannot wear unevenly, and that the balls are made comparatively large, insuring easier operation, giving greater capacity and obviating any liability of their being crushed. Another important feature is the fact that the gears cannot by any possibility come out of mesh, an important point, as any trouble of this kind would tend to derange the load and destroy the jack. Each of these new jacks has an additional bearing on the bevel pinion, insuring great ease of operation. The ball bearing screw jacks are made interchangeable with the roller bearing jacks which this company has been making for several years, so that it is possible to use roller bearings in place of ball bearings when desired. The line of ball bearing, roller bearing and cone bearing ratchet screw jacks manufactured by the company is designed to cover all purposes and provide any bearing that the purchaser may specify.

Fireproof Coal Sieve.

Rice & Co., Incorporated, Wire Works, Lowell, Mass., is manufacturing the new fireproof coal sieve, shown herewith, which is made of galvanized wire and regalanized after making. A heavy iron rod which supports



Fireproof Coal Sieve.

the sifter on the ash can or barrel is also carried underneath the bottom of the sieve, thus preventing the bottom bulging and reducing the wear. Particular attention has been given to the handle, which is fastened on the inside and riveted by hand to the galvanized iron; also to the plate on the outside of the sieve, which makes it exceptionally strong and durable. The manufacturer states that the sieve is fireproof, rustproof and weatherproof.

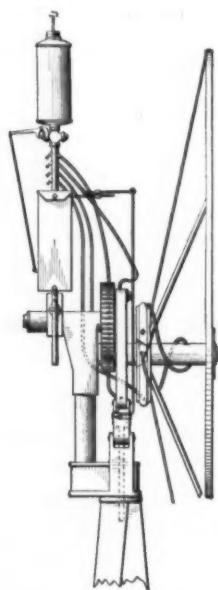
The King of Glass Cutters.

The glass cutter shown in the accompanying illustration is the product of the Hart Mfg. Company, Unionville, Conn. It is made of bright rolled steel with rosewood

handle. A feature of the tool referred to by the company as an improvement is the socket shank. The King of Cutters is one of a line of glass cutters made by this company, all manufactured from bright rolled steel, plain and nickel plated, and referred to as practically unbreakable.

The P. & W. Automatic Windmill Oiler.

L. C. Pond Company, 322 East Third street, Los Angeles, Cal., is offering the patented automatic windmill oiler shown herewith, which is adapted to use on at least 30 different styles of windmills. The object of the device is to provide for automatically delivering oil periodically from the reservoir to the distributor, which graduates the amount of oil, giving the proper supply to each separate bearing, the delivery period being automatically determined by the number of revolutions of the windmill, thereby securing just the amount of oil required, according to the actual operation of the mill. The delivery of the oil from the reservoir is controlled by a valve mechanism, which will automatically hold the valve open when a relatively thick or heavy oil is being used for a longer time than when a relatively lighter oil is being used, in order to give the heavier oil the longer time requisite for its sluggish flow. This is accomplished through the use of a pneumatic device, which



The P. & W. Automatic Windmill Oiler.

automatically holds the valve open for a longer or shorter time, as may be desired. The oil is conducted from the distributor to the oil holes in flexible wire tubing. The point is made that the oil serves to preserve the tubing, and therefore the whole device should outlast any windmill; also that the oiler will pay for itself within a short time. For mills where the oil holes revolve with the wheel there is a special ring conductor device, as shown in the cut, which enables the oiler to properly lubricate such bearings. The company explains that the device does the work of properly oiling all the working parts of a mill more evenly and better than can possibly be done by hand, inasmuch as it oils the bearings while the mill is in motion.

The Hobbs French Pattern Spring and Split Washers.

The Hobbs Mfg. Company, Worcester, Mass., has recently made improvements in machines for making the French pattern spring washer, which is shown in Fig. 1 of the accompanying illustrations. The washer conforms exactly to the form of the French product. The washers are commonly known as spring or lock washers and are made of high carbon steel, carefully formed and exactly tempered. Their function is not only to prevent nuts rattling if they become loosened, but also to prevent them loosening. These small spring washers, unseen by the casual observer, are coiled beneath every nut and around

every bolt in the car. The manufacturers of high grade French automobiles recognized the undesirability some years ago of washers cut from spring coils and have been using a washer the sides of which are parallel, the thickness being the same on the inner as on the outer circumference. The American builders of automobiles followed this lead and have been importing the French washers, as they could not formerly be obtained in this country, but they are now being made by the Hobbs Mfg. Company. The company has made another improvement



Fig. 1.



Fig. 2.

The Hobbs French Pattern Spring and Split Washers.

in its line of split washers, in the manufacture of pull rings and other articles of like nature. The new type is shown in Fig. 2. Goods of this class have hitherto been manufactured with what is known as a butt joint, the ends of the wire being cut off square and brought together. Such rings have good resisting quality for strains which would tend to spring them open, but have little resistance to sidewise strains. The special machinery already referred to permits the production of a V-joint. With this there can be no opening with sidewise pressure, nor until the washer has been sprung open enough for the sides and point of the V to pass. This class of goods is used very largely for harness rings, curtain pulls and for many other purposes. They are made round, half round or square, in any quantity or size desired.

Combination Breast and Chain Drill No. 7316.



Combination Breast and Chain Drill No. 7316.

The Goodell-Pratt Company, Greenfield, Mass., is putting on the market a combination breast and chain drill, as illustrated in the accompanying cut, suitable for holding round shank drills only, up to 1/2 in. It has two speeds, automatic feed, cut gears, adjustable breast plate, ball bearings, and is equipped with 3 ft. of heavy steel chain. The machine weighs 6 3/4 lb., and is approximately 21 in. long. It is referred to as a desirable combination in places where chain drills are frequently used.

E. C. ATKINS & Co., Indianapolis, Ind., have opened an office in Norfolk, Va., in charge of Robert B. Nixon, who has represented the company in that territory. The office is located at 1019-1020 Bank of Commerce Building, which is in the heart of the business section of Norfolk, within two squares of the boat landing, and every street railroad in the city passes its door. The office has been furnished for the comfort of the company's friends, and it is proposed to make it a headquarters for Hardwaremen during the Jamestown Exposition. The rooms are provided with desks, stationery, &c., and a stepographer's services will be at the disposition of visitors. There

is also a reading room, with copies of the latest periodicals on file.

Steel Capped Ramming Shovel Handle.

The Osborn Mfg. Company, Cleveland, Ohio, is putting on the market molders' shovels equipped with steel capped ramming handles, as shown herewith. The cap is a pean shaped steel stamping, so fitted to the handle as to make a perfect grip, and is riveted through the grip part of the handle, so that it cannot work loose. This makes an excellent ramming tool, where shovels are used in foundries for ramming purposes, and prevents the handle being broken from this use, thus materially prolonging the life



Steel Capped Ramming Shovel Handle.

of the shovel. The cost of shovels equipped with the cap is but little more than shovels with ordinary handles.

Brown & Sharpe Spacing Attachment.

The Brown & Sharpe Mfg. Company, Providence, R. I., has brought out a new spacing attachment for use with automatic center punches. The punch, which contains a striking mechanism operated by a downward pressure of the handle, is sufficiently powerful to make a sharp impression upon metal. As a part of a spacing attachment it assists in quickly and accurately spacing or laying out work to be machined or drilled. When adjusted for use the attachment is screwed onto the center punch in place of the removable point, as shown in

Fig. 1. The fine adjustment of the locating point is obtained by the screw at the end of the beam and the quick adjustment by pulling out the knob at the top of the post. The point is held by a knurled check nut, and

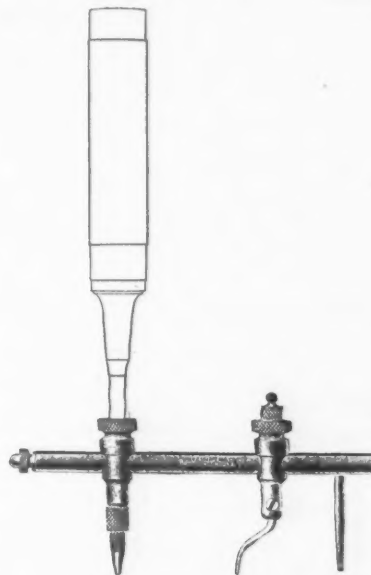


Fig. 1.—Spacing Attachment No. 612.

can be adjusted to varying lengths. The center punch has been adapted to pocket use, as shown in Fig. 2. It is made to meet a demand for a small, light tool of its class suitable for the more delicate work required in tool making. The striking mechanism is adjusted to give a fine and firm punch mark, such as die makers and tool makers find necessary. A downward pressure releases

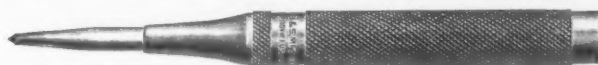


Fig. 2.—Pocket Automatic Center Punch.

the striking block and makes the impression. The tool is constructed of steel throughout, and all parts subject to wear are carefully hardened and tempered. The barrel is finely finished and knurled to prevent its slipping in the hand. The tool is $4\frac{1}{8}$ in. long and $\frac{3}{8}$ in. in diameter.

PAINTS, OILS AND COLORS

Animal, Fish and Vegetable Oils—

Animal, Fish and Vegetable Oils—	per gal.
Linseed, City, raw.....	45 @ 46
City, Boiled.....	46 @ 47
State and Western, raw.....	44 @ 45
Raw Calcutta, in bbls.....	70 @ 71
Lard, Extra Prime, Winter.....	77 @ 78
Extra No. 1.....	57 @ 58
No. 1.....	49 @ 50
Cotton-seed, Crude, f.o.b. mills.....	38 @ 39
Summer Yellow, Prime.....	56 1/2 @ 57 1/4
Summer White.....	62 @ 63
Yellow Winter.....	63 @ 64
Sperm, Crude.....	59 @ 60
Natural Winter.....	72 @ 73
Bleached Winter.....	75 @ 76
Bleached Winter, Extra.....	76 @ 77
Tallow, Prime.....	60 @ 61
Whale, Crude.....	35 @ 36
Natural Winter.....	46 @ 47
Bleached Winter.....	48 @ 49
Extra Bleached Winter.....	50 @ 51
Menhaden, Brown, Strained.....	32 @ 33
Light Strained.....	32 @ 33
Northern.....	26 @ 27
Southern.....	26 @ 27
Cocunut, Ceylon.....	94 @ 95
Cochin.....	10 @ 10 1/4
Cod, Domestic, Prime.....	36 @ 37
Newfoundland.....	40 @ 41
Red, Elaine.....	47 @ 48
Saponified.....	7 @ 7 1/4
Olive, Italian, bbls., Yellow.....	85 @ 86
Neatsfoot, Prime.....	56 @ 57
Palm, Logos.....	7 @ 7 1/4

Mineral Oils—

Black, 29 gravity, 25@30 cold test.....	11 1/2 @ 12
29 gravity, 15 cold test.....	12 1/2 @ 13 1/2
Summer.....	11 1/2 @ 12
Cylinder, light filtered.....	19 @ 20
Dark, filtered.....	16 1/2 @ 17 1/2
Paraffine, 903-907 gravity.....	14 @ 14 1/4
903 gravity.....	13 @ 13 1/4
883 gravity.....	10 1/2 @ 11 1/4
Red.....	13 @ 14 1/4

Miscellaneous—

Barytes:	
White, Foreign.....	100 lb \$18.50 @ 20.50
Amer. floated.....	100 lb 19.00 @ 20.00
Off color.....	100 lb 13.00 @ 16.50
Chalk, in bulk.....	100 lb 3.00 @ 3.25
In bbls.....	100 lb @ 35
China Clay, Imported.....	100 lb 11.00 @ 17.50
Cobalt, Oxide.....	100 lb 2.50 @ 2.60
Whiting, Commercial.....	100 lb .43 @ .52
Gilders.....	100 lb .55 @ .65
Ex. Gilders.....	100 lb .60 @ .65
Putty, Commercial—	100 lb
In bladders.....	41.70 @ 1.85
In bbls. or tubs.....	1.20 @ 1.45
In 1 lb to 5 lb cans.....	2.65 @ 2.95
In 12 1/2 to 50 lb cans.....	1.50 @ 1.90
Spirits Turpentine—	per gal.
In Oil bbls.....	60 @ 60 1/2
In machine bbls.....	60 1/2 @ 61
Glue—	
Cabinet.....	12 @ 15
Common Bone.....	7 1/4 @ 9
Extra White.....	18 @ 24
Foot Stock, White.....	12 @ 14
Foot Stock, Brown.....	9 @ 11
German Hide.....	12 @ 18
Irish.....	13 @ 16
Low Grade.....	10 @ 12
Medium White.....	14 @ 17
Gum Shellac—	
Bleached, Commercial.....	45 @ 46
Bone, Dry.....	56 @ 57
Buttong I.....	40 @ 50
Fine Orange.....	52 @ 57
A. C. Garnet.....	45 @ 46
Kala Button.....	35 @ 36
D. C.....	62 @ 63
Octagon B.....	56 @ 57
T. N.....	45 @ 48
V. S. O.....	59 @ 60
Colors in Oil—	
Black, Lampblack.....	12 @ 14
Blue, Chinese.....	36 @ 46
Blue, Prussian.....	32 @ 36

Blue, Ultramarine.....	13 @ 16
Brown, Vandyke.....	11 @ 14
Green, Chrome.....	12 @ 16
Green, Paris.....	24 @ 24
Sienna, Raw.....	12 @ 15
Sienna, Burnt.....	12 @ 15
Umber, Raw.....	11 @ 14
Umber, Burnt.....	11 @ 14

White Lead, Zinc, &c.—

Lead, English white, in Oil.....	9 1/2 @ 10
Lead, American White:	
Lots of 500 lb or over, in Oil.....	7 1/4 @ 7 1/2
Lots less than 500 lb, in Oil.....	8 @ 8 1/2
Lead, White, in oil, 25 lb tin	
pails, add to keg price.....	1/4 @ 1/2
Lead, White, in oil, 12 1/2 lb tin	
pails, add to keg price.....	1 @ 1 1/2
Lead, White, in oil, 1 to 5 lb	
assorted tins, add to keg price.....	1 1/4 @ 1 1/2
Lead, American, Tenuis: For lots 13	
tons and over 1/4¢ rebate; and 2% for	
cash if paid in 15 days from date of	
invoice; for lots of 500 lbs. and over	
2% for cash if paid in 15 days from	
date of invoice, for lots of less than	
500 lbs. net.....	5 1/2 @ 5 1/4
Zinc, American, dry.....	5 1/2 @ 5 1/4
Zinc, French:	
Antwerp, Red Seal, dry.....	8 1/2 @ 8 1/4
Antwerp, Green Seal, dry.....	10 1/4 @ 10 1/2
Paris, Red Seal, dry.....	9 1/4 @ 9 1/2
Paris, Green Seal, dry.....	11 @ 11 1/2
Zinc, V. M. French, in Poppy Oil:	
Green Seal:	
Lots of 1 ton and over.....	13 1/2 @ 13 1/4
Lots of less than 1 ton.....	13 1/2 @ 13 1/4
Zinc, V. M. French, in Poppy Oil:	
Red Seal:	
Lots of 1 ton and over.....	11 1/2 @ 12 1/2
Lots of less than 1 ton.....	12 1/2 @ 12 1/4
Discounts—French Zinc—Discounts	
to buyers of 10 bbl. lots of one or mixed	
grades, 1%; 25 bbls., 2%; 50 bbls., 4%.	
Dry Colors—	
Black, Carbon.....	6 1/4 @ 10
Black Drop, American.....	3 1/2 @ 8
Black Drop, English.....	5 @ 15

Black, Ivory.....	16 @ 20
Lamp, Com.....	4 @ 6
Blue, Celestial.....	4 @ 6
Blue, Chinese.....	30 @ 33
Blue, Prussian.....	28 @ 32
Blue, Ultramarine.....	3 1/2 @ 15
Brown, Spanish.....	1 1/2 @ 1
Carmine, No. 43.....	3.10 @ 3.25
Green, Chrome, ordinary.....	3 1/4 @ 7
Green, Chrome, pure.....	17 @ 25
Lead, Red, bbls., 1/2 bbls., kegs.....	6 1/2 @ 7 1/4
Litharge, bbls., 1/2 bbls., kegs.....	7 1/4 @ 7 1/2
Ocher, American.....	10 @ 10 1/2
American Golden.....	2 1/4 @ 3 1/4
French.....	1 1/4 @ 2
Foreign Golden.....	3 @ 4
Orange Mineral, English.....	10 @ 12
French.....	11 1/4 @ 12
German.....	10 @ 12
American.....	8 1/4 @ 9
Red, Indian, English.....	4 1/4 @ 6
American.....	3 @ 3 1/4
Red, Turkey, English.....	4 @ 10
Red, Tuscan, English.....	7 @ 10
Red, Venetian, Amer.....	100 lb \$0.50 @ 1.25
English.....	100 lb \$1.15 @ 1.60
Sienna, Italian, Burnt and	
Powdered.....	3 @ 9
Italian, Raw, Powdered.....	3 @ 7
American, Raw.....	1 1/4 @ 2
American Burnt and Powdered.....	1 1/4 @ 2
Talc, French.....	100 lb \$1.00 @ 25.00
American.....	100 lb 15.00 @ 25.00
Terra Alba, French.....	100 lb .90 @ 1.00
English.....	100 lb .80 @ 1.00
American.....	100 lb .75 @ .80
American.....	100 lb .60 @ .65
Umber, T'kev. Bnt. & Pow.....	2 1/4 @ 3 1/2
Burnt, American.....	1 1/4 @ 2
Raw, American.....	1 1/4 @ 2
Yellow Chrome, Pure.....	12 @ 14
Vermilion, American Lead.....	7 @ 25
Quicksilver, bulk.....	6 @ 25
Quicksilver, bags.....	6 @ 25
English, Imported.....	55 @ 70
Chinese.....	\$0.90 @ \$1.00

Current Hardware Prices.

General Goods.—In the following quotations General Goods—that is, those which are made by more than one manufacturer—are printed in *Italics*, and the prices named, unless otherwise stated, represent those current in the market as obtainable by the fair retail Hardware trade, whether from manufacturers or jobbers. Very small orders and broken packages often command higher prices, while lower prices are frequently given to larger buyers.

Special Goods.—Quotations printed in the ordinary type (Roman) relate to goods of particular manufacturers, who are responsible for their correctness. They usually represent the prices to the small trade, lower prices being obtainable by the fair retail trade, from manufacturers or jobbers.

'Range of Price.'—A range of prices is indicated by means of the symbol @. Thus 33½ @ 33½ & 10% signifies

that the price of the goods in question ranges from 33½ per cent. discount to 33½ and 10 per cent. discount.

Names of Manufacturers.—For the names and addresses of manufacturers see the advertising columns and also THE IRON AGE DIRECTORY, issued May, 1906, which gives a classified list of the products of our advertisers and thus serves as a DIRECTORY of the Iron, Hardware and Machinery trades.

Standard Lists.—A new edition of "Standard Hardware Lists" has been issued and contains the list prices of many leading goods.

Additions and Corrections.—The trade are requested to suggest any improvements with a view to rendering these quotations as correct and as useful as possible to Retail Hardware Merchants.

Adjusters, Blind—

Domestic, ½ doz. \$3.00.....33½%
North's.....10%
Zimmerman's—See Fasteners, Blind.

Window Stop—

Ives' Patent.....35%
Taplin's Perfection.....35%

Ammunition—See Caps, Cartridges, Shells, &c.

Anti-Rattlers—

Fernald Mfg. Co. Burton Anti-Rattlers, ½ doz. pairs, Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 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1343, 1344, 1345, 1346, 1347, 1348, 1349, 1350, 1351, 1352, 1353, 1354, 1355, 1356, 1357, 1358, 1359, 1360, 1361, 1362, 1363, 1364, 1365, 1366, 1367, 1368, 1369, 1370, 1371, 1372, 1373, 1374, 1375, 1376, 1377, 1378, 1379, 1380, 1381, 1382, 1383, 1384, 1385, 1386, 1387, 1388, 1389, 1390, 1391, 1392, 1393, 1394, 1395, 1396, 1397, 1398, 1399, 1400, 1401, 1402, 1403, 1404, 1405, 1406, 1407, 1408, 1409, 1410, 1411, 1412, 1413, 1414, 1415, 1416, 1417, 1418, 1419, 1420, 1421, 1422, 1423, 1424, 1425, 1426, 1427, 1428, 1429, 1430, 1431, 1432, 1433, 1434, 1435, 1436, 1437, 1438, 1439, 1440, 1441, 1442, 1443, 1444, 1445, 1446, 1447, 1448, 1449, 1450, 1451, 1452, 1453, 1454, 1455, 1456, 1457, 1458, 1459, 1460, 1461, 1462, 1463, 1464, 1465, 1466, 1467, 1468, 1469, 1470, 1471, 1472, 1473, 1474, 1475, 1476, 1477, 1478, 1479, 1480, 1481, 1482, 1483, 1484, 1485, 1486, 1487, 1488, 1489, 1490, 1491, 1492, 1493, 1494, 1495, 1496, 1497, 1498, 1499, 1500, 1501, 1502, 1503, 1504, 1505, 1506, 1507, 1508, 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2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 205

Hendryx Bronze; Series 700, 800...30%
Hendryx Enamelled...35%

Calipers—See Compasses.

Calks, Toe and Heel—

Blunt, 1 prong, per lb., 4¢ @ 4¢
Sharp, 1 prong, per lb., 4¢ @ 5¢
Burke's Blunt, 4¢ @ 4¢; Sharp, 4¢ @ 5¢
Gautier, Blunt, 4¢ @ 4¢; Sharp, 4¢ @ 5¢
Perkins, Blunt, 4¢ @ 4¢; Sharp, 4¢ @ 5¢

Can Openers—

See Openers, Can.

Cans, Milk—

Illinois Pattern...\$1.35 8 10 gal.
New York Pattern...1.50 2.20 2.45 each.
Baltimore Pattern...1.50 2.20 2.45 each.
Dubuque...1.35 1.50 1.75 each.

Cans, Oil—

Buffalo Family Oil Cans:
3 5 10 gal.
\$18.00 00.00 120.00 gro., net.

Caps, Percussion—

Eley's E. B.58¢ @ 55¢
G. D.per M 34¢ @ 35¢
F. L.per M 40¢ @ 42¢
G. E.per M 48¢ @ 50¢
Musketper M 62¢ @ 65¢

Primers—

Berdan Primers, 32 per M. 20¢ @ 5%
Primer Shells and Bullets...15¢ @ 10%
All other primers per M. \$1.52 @ 1.60

Cartridges—

Blank Cartridges:
32 C. F., \$5.50...10¢ @ 5%
38 C. F., \$7.00...10¢ @ 5%
22 cal. Rim, \$1.50...10¢ @ 5%
32 cal. Rim, \$2.75...10¢ @ 5%
B. B. Caps, Con. Ball, Sieged...\$1.50
B. B. Caps, Round Ball...\$1.40
Central Fire...25¢
Target and Sporting Rifle...15¢ @ 5%
Primed Shells and Bullets...15¢ @ 5%
Rim Fire, Sporting...50¢
Rim Fire, Military...15¢ @ 5%

Casters—

Bed65¢ @ 10%
Plate60¢ @ 5%
Philadelphia70¢ @ 10%
Acme, Ball Bearing...33¢
Boss Anti-Friction...70¢ @ 10%
Gem (Roller Bearing)...80¢
Martin's Patent (Phoenix)...45¢
Standard Ball Bearing...45¢
Tucker's Patent low list...30¢
Yale (Double Wheel) low list...50¢

Cattle Leaders—

See Leaders, Cattle.

Chain, Proof Coil—

American Coil, Straight Link:
3-16 1/4 5-16 3/4 7-16 1/2 9-16
\$3.77 6.17 5.02 4.37 4.27 4.23
\$3.77 1/4 1/2 1 1 1/2 to 1 1/2 inch.
\$4.17 In cast lots, deduct 25¢
German Coil...60¢ @ 10% @ 10% @ 70%

Halter—

Halter Chains...60¢ @ 60¢ @ 5%
German Pattern Halter Chains,
list July 24, '97...60¢ @ 10¢ @ 5%
Covert Mfg. Co.
Halter...35¢ @ 5%

Cow Ties—

See Halters and Ties.

Trace, Wagon, &c.—

Traces, Western Standard: 100 pr.
6 1/2-6-3, Straight, with ring, \$28.00
6 1/2-6-2, Straight, with ring, \$29.00
6 1/2-8-2, Straight, with ring, \$32.00
6 1/2-10-2, Straight, with ring, \$37.00

NOTE—Add 2c per pair for Hooks.
Twist Traces: add per pair for Nos. 2
and 3, 2c; No. 1, 1c; No. 0, 4c to price of
Straight Link.

Eastern Standard Traces, Wag-
on Chain, &c...60%

Miscellaneous—

Jack Chain, list July 10, '93:
Iron...60¢ @ 10%
Brass...50¢ @ 10%
Safety and Plumbers' Chain...60¢ @ 10%
Gal. Pump Chain...10¢ @ 4¢ @ 5%
Covert Mfg. Co.:
Heel, Rein, Stal-
lion...40%
Oneida Community:
American Halter, Dog and Kennel
Chains...35¢ @ 2¢ @ 10%
Niagara Dog Leads and Kennel
Chains...45¢ @ 60¢ @ 5%
Wire Goods Co.:
Dog Chain...70¢ @ 10%
Universal Dbl.-Jointed Chain...50%

Chain and Ribbon, Sash—

Oneida Community:
Steel Chain...60%
Pulman:
Bronze Chain, 60%; Steel Chain,
60¢ @ 10%
Sash Chain Attachments, per set, 3¢
Aluminum Sash Ribbon, per 100
ft...\$1.25 @ \$3.00
Sash Ribbon Attachments, per set, 3¢

Chalk—(From Jobbers.)

Carpenters' Blue...gro., 50¢ @ 55¢
Carpenters' Red...gro., 45¢ @ 50¢
Carpenters' White...gro., 40¢ @ 45¢

Checks, Door—

Bardsley's...45%
Pulman, per gro...\$51.00
Russwin...33%

Chests, Tool—

American Tool Chest Co.:
Boys' Chests, with Tools...50%
Youths' Chests, with Tools...35%
Gentlemen's Chests, with Tools...25%
Farmers', Carpenters', etc., Chests,
with Tools...29%
Machinists and Pipe Fitter's
Chests, Empty...45%
Tool Cabinets...45%
C. E. Jennings & Co.'s Machinists'
Tool Chests...75%

Chisels—

Socket Framing and Firmer

Standard List...70¢ @ 10% @ 75%

Buck Bros...30%

C. E. Jennings & Co.:
Socket Firmer No. 10...25¢ @ 75%

Socket Framing No. 15...25¢ @ 75%

Swan's...66¢ @ 70%

L. & I. J. White Co...30¢ @ 30¢ @ 5%

Tanged—

Tanged Firmers...30¢ @ 45¢ @ 35%

Buck Bros...30%

C. E. Jennings & Co. Nos. 191, 181, 25%
L. & I. J. White Co...35%

Cold—

Cold Chisels, good quality...13¢ @ 15¢

Cold Chisels, fair quality...11¢ @ 12¢

Cold Chisels, ordinary...9¢ @ 10¢

Chucks—

Almond Drill Chucks...35%

Almond Turret Six-Tool Chuck...40%

Beach Pat., each \$8.00...35¢ @ 5%

Empire...25%

Blacksmiths'...25%

Jacobs' Drill Chucks...35%

Pratt's Positive Drive...25%

Skinner Patent Chucks...40%

Independent Lathe Chucks...40%

Universal, Reversible Jaws...40%

Combination, Reversible Jaws...40%

Drill Chucks, New Model, 25%
Standard, 40¢ @ 10%; Skinner Pat.,
25%; Positive Drive...40%

Planer Chucks...30%

Face Plate Jaws...40%

Standard Tool Co.:
Improved Drill Chuck...45%

Union Mfg. Co.:
Combination, Nos. 1, 2, 3, 4, 5, 6,
7, 8 and 17, 40%; No. 21...35%

Scroll Combination, Nos. 82 and 84...30%

Geared Scroll, Nos. 33, 34 and 35...30%

Independent Iron, Nos. 18 and 318...35%

Independent Steel, No. 64...25%

Union Drill, Nos. 000, 00, 100, 101,
102, 103, 104...35%

Union Czar Drill...25%

Universal 11, 12, 16, 17, 13, 14, 15...35%

Universal, No. 42...30%

Iron Face Plate Jaws, Nos. 28, 30,
48 and 50...35%

Steel Face Plate Jaws, Nos. 70 and
72...30%

Westcott Patent Chucks...50%

Lathe Chucks...50%

Little Giant Auxiliary Drill...50%

Little Giant Double Grip Drill...50%

Little Giant Drill, Improved...50%

Oneida Drill...50%

Scroll Combination Lathe...50%

Clamps—

Adjustable, Hammers...20¢ @ 20¢ @ 5%

Carriage Makers', P., S. & W.
Co...40¢ @ 10¢ @ 50%

Resly, Parallel...33¢ @ 10%

Myers' Hay Rack...45%

Lineman's, Utica Drop Forge & Tool
Co...40%

Wood Workers' Hammers...40¢ @ 10%

Saw Clamps, see Vises, Saw Filers.

Cleaners, Drain—

Iwan's Champion, Adjustable...50%

Iwan's Champion, Stationary...40%

Sidewalk—

Star Socket, All Steel...\$9 doz. \$4.05 net

Star Shank, All Steel...\$9 doz. \$3.24 net

W. & C. Shank, All Steel...\$9 doz.,
7 1/2 in., \$3.00; 8 in., \$3.25.

Cleavers, Butchers'—

Foster Bros...30%

Fayette R. Plumb...30%

L. & I. J. White Co...30%

Clippers, Horse and

Sheep—

Chicago Flexible Shaft Company:
1902 Chicago Horse, each...\$10.75

20th Century Horse, each...\$5.00

Lightning Belt Horse, each...\$15.00

Chicago Belt Horse, each...\$20.00

Stewart's Enclosed Gear
Horse, each...\$17.75

Stewart's Patent Sheep Shear-
ing Machine, each...\$12.75

Stewart Enclosed Gear Shear-
ing Machine, No. 8, each...\$9.75

Clips, Axle—

Regular Styles, list July 1, '05,
80¢ @ 80¢ @ 10%

Cloth and Netting, Wire

—See Wire, &c.

Cocks, Brass—

Hardware list:
Plain Bibbs, Globe, Kerosene,
Racking, Taper, Bottling,
&c...60¢ @ 10¢ @ 65%

Compression Bibbs...55¢ @ 10¢ @ 60%

Coffee Mills—

See Mills, Coffee.

Collars, Dog—

Nickel Chain, Walter B. Stevens &
Son's list...40%

Leather, Walter B. Stevens & Son's
list...40%

Combs, Curry—

Metal Stamping Co...40%

Compasses, Dividers, &c.

Ordinary Goods...70¢ @ 10¢ @ 75%

Wm. Schollhorn Co.:
Excelsior Dividers...55%

Lodi Dividers...75%

Conductor Pipe—

L. C. L. to Dealers:

Galvanized Charcoal Copper.

Steel. Iron. 1 1/2, 1 3/4, 2 oz.

Eastern: 70% 50¢ @ 17 1/2% 30%

Central: 65¢ @ 10% 55¢ @ 2 1/2% 20¢ @ 10%

Western and Southern: 65¢ @ 5% 50¢ @ 7 1/2% 20¢ @ 7 1/2%

So. Western: 50¢ @ 25¢ @ 2 1/2% 50% 20¢ @ 5%

Terms, 60 days; 2% cash 10 days. Fac-
tory shipments generally delivered.

See also Eave Troughs.

Coolers, Water—

Gal. each, 2 3 4 6 8

Labrador...\$1.20 \$1.50 \$1.80 \$2.10 \$2.70

Gal...3 4 6 8

Iceland, ea...\$1.80 \$2.10 \$2.40 \$3.00

Gal...2 3 4 6 8

Galvanized, ea...\$1.85 \$2.00 \$2.25 \$2.90 \$3.90

Galvanized, Lined, side handles,
Gal...2 3 4 5 8

Each...\$1.55 \$2.15 \$2.40 \$3.30 \$4.15

White Enamelled, 10%; Agate Lined, 10%

Coopers' Tools—

See Tools, Coopers'.

Coppers' Soldering—

Soldering Coppers, 5 lbs. to pair

and heavier, 32¢ @ 35¢; lighter

than 3 lb. to pair...34¢ @ 37¢

Cord—

Braided, Drab...10¢ @ 35¢

Braided, White, Com., Nos. 8

to 12, 26¢; No. 7, 26 1/2¢; No. 6,

27 1/2¢.

Cable Laid Italian, lb., No. 18...37¢

Italian, lb., A, No. 18, 25¢; B, 22¢

Common India...lb., 11¢ @ 11 1/2¢

Cotton Sash Cord, Twisted...18¢ @ 20¢

Patent Russia...lb...20¢

Cable Laid Russia...lb...21¢

India Hemp, Br'd'd...lb...21¢

India Hemp, Twisted...lb...13¢ @ 14¢

Patent India, Twisted...lb...17¢

Pearl Braided, cotton, No. 6, 7 lb.,

27 1/2¢; No. 7, 26 1/2¢; Nos. 8 to 12, 26¢

Eddystone, Braided, Nos. 8 to 12,

26¢; 7, 26 1/2¢; 6, 27 1/2¢.

Harmony Cable Laid Italian, Nos. 7

to 10...lb 23¢

Pulman:

Wire Sash Cord...10%

Sash Cord Attachments, per doz...10%

Samson, Nos. 8 to 12:

Braided, 10 lb., Drab Cotton,

55¢; Italian Hemp, 40¢ @ 45¢

50¢; Lined, 65¢; White Cot-

ton, 5¢; Spec. Cord...50¢

Massachusetts, White...lb 40¢

Massachusetts, Drab...lb 45¢

Phoenix, White, Nos. 8 to 12, 27¢;

Silver Lake, per lb.:
A, Drab, 45¢; A, White, 40¢;

B, Drab, 40¢; B, White, 35¢;

Italian Hemp, 40¢; Lined...57 1/2¢

See also Chain and Ribbon.

Wire, Picture—

List July 10, 1906, 85¢ @ 10¢ @ 10%

Hendryx Standard Wire Picture Cord,
old list, 85¢ @ 10%

Turner & Stanton Co. Wire Picture
Cord...85¢ @ 10% @ 10%

Cradles—

Grain...40¢ @ 12 1/2%

Crayons—

White Round Crayons, Cases, 100

gro., \$6.50 @ \$7.50 at factory, but

lower prices made by jobbers

Zelnicke's Lumber, 70 gro.

White and Purple, Indelible...\$7.50

Blue, Red, Green, Yellow and

Terra Cotta, \$6.50; Black...\$4.00

Giant Lumber, 5 1/4 in. x 15-16 in.

round, all colors, \$16.25; Indeli-

bles...\$18.75

Extractors, Lemon Juice

—See Squeezers, Lemon.

Fasteners, Blind—

Zimmerman's 50¢/10%

Walling's 40¢/10%

Upson's Patent 40%

Cord and Weight—

Ives and Titan 33 3/4%

Faucets—

Cork Lined 50¢/50¢/10%

Metallic Key, Leather Lined 60¢/10¢/70%

Red Cedar 40¢/10¢/50%

Petroleum 70¢/10¢/75%

B. & L. B. Co.: 60¢/10%

Star 60%

West Lock 50¢/10%

John Sommer's Peerless Tin Key 40%

John Sommer's Boss Tin Key 50%

John Sommer's Victor Mtl. Key 50¢/10%

John Sommer's Duplex Metal Key 60%

John Sommer's Diamond Lock 40%

John Sommer's I. X. L. Cork Lined 50%

John Sommer's Reliable Cork Lined 50¢/10%

John Sommer's Chicago Cork Lined 60%

John Sommer's O. K. Cork Lined 50%

John Sommer's No Brand, Cedar 50%

John Sommer's Perfection, Cedar 40%

McKenna, Brass: 25%

Burglar Proof, N. P. 25%

Improved, 3/4 and 1/2 inch 25%

Self Measuring: 40¢/10%

Lane's, 3/4 doz. \$36.00 40¢/10%

National Measuring, 3/4 doz. \$36.40 40¢/10%

Felloe Plates—

See Plates, Felloe.

Files— Domestic—

List Nov. 1, 1899. 70¢/10¢/75¢/10%

Best Brands 75¢/10¢/75¢/10¢/10%

Standard Brands 75¢/10¢/75¢/10¢/10%

Lower Grade 75¢/10¢/75¢/10¢/10%

Imported—

Stubs' Tapers, Stubs' Hat, July 24, '97 33 1/3-34¢/40%

Fixtures, Fire Door—

Allith Underwriters' Approved 50%

Richards Mfg. Co.: 100%

Universal, No. 103; Special, No. 104 \$3.75

Fusible Links, No. 96 50%

Expansion Bolts, No. 107 60¢/10%

Grindstone—

Net Prices: 15 17 19 21

Per doz. \$3.25 3.75 4.25 4.75

P. S. & W. Co. 30¢/10%

Reading Hardware Co. 60%

Stowell's Giant Grindstone Hanger, 3/4 doz. \$6.00

Stowell's Grindstone Fixtures, Extra Heavy, 40¢/10%; Light 50%

Fodder Squeezers—

See Compressors.

Forks—

NOTE.—Manufacturers are selling from the list of September 1, 1904, but many jobbers are still using list of August 1, 1899, or selling at net prices.

Iowa Dig-Ezy Potato 60¢/10%

Victor, Hay 60¢/15¢/2 1/2%

Victor, Manure 66 2/3%

Victor, Header 66 2/3%

Champion, Hay 66 2/3%

Champion, Header 66 2/3%

Columbia, Hay 60¢/15¢/2 1/2%

Columbia, Manure 60¢/15¢/2 1/2%

Columbia, Header 70%

Columbia, Spading 70¢/12 1/2%

Hawkeye Wood Barley 40%

W. & C. Potato Digger 60¢/10%

Acme Hay 60¢/20%

Acme Manure, 4 line 60¢/10¢/5%

Dakota Header 60¢/20%

Kansas Steel Barley 60¢/20%

W. & C. Favorite Wood Barley 40%

Plated.—See Spoons.

Frames— Wood Saw—

White, 8'x7' Bar, per doz. 75¢/80¢

Red, 8'x7' Bar, per doz. \$1.00¢/1.25

Red, Dbl. Brace, per doz. \$1.40¢/1.50

Freezers, Ice Cream—

Qt. 1 2 3 4 6

Each \$1.30 \$1.60 \$1.90 \$2.20 \$2.50

Fruit and Jelly Presses—

See Presses, Fruit and Jelly.

Fry, Pans—See Pans, Fry.**Fuse— Per 1000 Feet.**

Hemp \$2.75

Cotton 3.20

Waterproof Spl. Taped 3.65

Waterproof Dbl. Taped 4.40

Waterproof Tpl. Taped 6.15

Gates, Molasses and Oil—

Stobbins' Pattern 75¢/80%

Gauges—

Marking, Mortise, 40.50¢/50¢/10%

Chapin-Stephens Co.: 50¢/50¢/10%

Marking, Mortise, 40.50¢/50¢/10%

Stanley R. & L. Co.'s Butt and Rabbit Gauge 50%

Marking and Mortise 50%

Wire, Brown & Sharpe's 35%

Wire, Morse 35%

Wire, P. S. & W. Co. 30%

Gimlets— Single Cut—

Numbered assortments, per gro.

Nail, Metal, No. 1. \$2.00; 2. \$2.30

Spike, Metal, No. 1. \$4.00; 2. \$4.50

Nail, Wood Handled, No. 1. \$2.50; 2. \$2.80

Spike, Wood Handled, No. 1. \$4.50; 2. \$5.00

Glass, American Window

See Trade Report.

Glasses, Level—

Chapin-Stephens Co. 65¢/65¢/10%

Glue, Liquid Fish—

Bottles or Cans, with Brush 25¢/10¢/50%

International Glue Co. (Martin's) 40%

Grease, Axle—

Common Grade gro. \$4.50¢/6.00

Dixon's Everlasting, 10-lb pails, ea. 85¢; in boxes, 3/4 doz., 1 lb. \$1.20;

2 lb. \$2.00

Helmert Hard Oil 25%

Griddles, Soapstone—

Pike Mfg. Co. 33 1/3¢/33 1/3¢/10%

Grindstones—

Pike Mfg. Co.: 33 1/3¢/33 1/3¢/10%

Improved Family Grindstones, 3/4 inch, 3/4 doz., \$2.00 33 1/3%

Royal Mfg. Co.: 33 1/3¢/33 1/3¢/10%

Alundum Grinding Machines, each, Nos. 01, \$1.75; 1A, \$2.50; 10, \$5.00

Alundum Sickle Grinders, each, Nos. 20A, \$6.00; 20A Combined, \$6.50

Alundum Disc Grinders, each, \$2.50

Grips, Nipple—

Perfect Nipple Grips 40¢/10¢/2%

Halters and Ties—

Cow Ties 60¢/50¢/10%

Covert Mfg. Co.: 30¢/2%

Web 30¢/2%

Jute Rope 35%

Sisal Rope 20%

Cotton Rope 45%

Hemp Rope 45%

Oneda Community: 40¢/40¢/5%

Am. Coll and Halters 40¢/40¢/5%

Am. Cow Ties 45¢/50%

Ningara Coll and Halters 45¢/50%

Ningara Cow Ties 45¢/50%

Hammers—**Handled Hammers—**

Heller's Machinists' 55¢/10¢/55¢/10¢/5%

Heller's Farriers' 40¢/50¢/40¢/10¢/5%

Magnetic Tack, Nos. 1, 2, 3, \$1.25; \$1.50, \$1.75

Peck, Stow & Wilcox, Steel 50%

Fayette R. Plumb: 40¢/2 1/2¢/40¢/12 1/2%

Eng. and B. S. Hand 50¢/12 1/2¢/60%

Machinists' Hammers 50¢/15¢/60%

Rivet and Timmers 40¢/2 1/2¢/40¢/12 1/2%

Vaughan & Bushnell Mfg. Co.: 40¢/2 1/2¢/40¢/12 1/2%

A. E. Nail 40¢/2 1/2¢/40¢/12 1/2%

Machinists' 50¢/15¢/60%

Heavy Hammers and Sledges—

Under 3 lb., per lb., 50¢/80¢/5¢/10%

3 to 5 lb., per lb., 40¢/80¢/5¢/10%

Over 5 lb., per lb., 30¢/80¢/5¢/10%

Wilkinson's Smiths' lb. 9¢/10¢/10%

Handles—**Agricultural Tool Handles**

Axe, Pick, etc. 60¢/10¢/60¢/10¢/5%

Hoe, Rake, etc. 40¢/45¢/5%

Fork, Shovel, Spade, etc.: 40¢/45¢/5%

Long Handles 40¢/45¢/5%

D Handles 40%

Cross-Cut Saw Handles

Alkins 40%

Champion 50%

Disston's 50%

Mechanics' Tool Handles

Auger, assorted gro. \$2.50¢/3.00

Brad Axl. gro. \$1.65¢/1.75

Chisel Handles, Ass'd, per gro.: \$2.65; Hickory \$2.15¢/2.40

Socket Firming, Apple, \$1.75¢/1.95; Hickory \$1.45¢/1.60

Socket Framing, Hickory, \$1.60¢/1.75

File, assorted gro. \$1.30¢/1.40

Hammer, Hatchet, etc. 60¢/10¢/80¢/10¢/5%

Hand Saw, Varnished, doz. 80¢/85¢; Not Varnished 65¢/75¢

Plane Handles: Jack, doz. 30¢; Jack, Bolted, 75¢

Fore, doz. 45¢; Fore, Bolted, 90¢

Chapin-Stephens Co.: 40¢/40¢/10%

Chisel 65¢/65¢/10%

File and Axl. 65¢/65¢/10%

Saw and Plane 40¢/40¢/10%

Screw Driver 40¢/40¢/10%

Millers Falls Adj. and Ratchet Auger Handles 20¢/10%

Nicholson Simplicity File Handle 30%

W. A. Zelnicker Supply Co.: 30%

Hammer, per doz., 12 in., \$2.00; 16 in., \$2.30; 18 in., \$2.50; 20 in., \$2.70; 22 in., \$3.00; 24 in., \$3.30; 26 in., \$3.50; 30 in., \$3.80

Sledge, per doz., oval 30 in., \$3.80; octagon, 30 in., \$3.80; oval 36 in., \$4.00; octagon, 36 in., \$4.00

Axe, per doz., 28 to 31 in., \$5.60; 36 in., \$5.80

Adze, per doz., 36 in., \$5.80; 36 in., \$7.80

Pick, per doz., R. R., 36 in., \$8.00; coal, 34 in., \$5.80

Hatchet, per doz., 12 to 14 in., \$2.00

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, etc.

Allith Mfg. Co.: 50%

Reliable, Nos. 1 and 2; Allith, No. 3; Allith Adjustable, No. 6; Reliable Parlor Door 50%

Chicago Spring Butt Co.: 25%

Friction 25%

Oscillating 25%

Big Twin 25%

Chisholm & Moore Mfg. Co.: 50%

Baggage Car Door 50%

Elevator 50%

Railroad 50%

Cronk & Carrier Mfg. Co.: 60¢/2 1/2%

Loose Axle 70¢/2 1/2%

Roller Bearing 70¢/2 1/2%

Grip 70¢/2 1/2%

Solid Axle, No. 10, \$12.00, 60¢/10%

Roller Bearing, No. 11, \$5.00, 60¢/10%

Roller Bearing, Ex. 11, 22, \$18.00, 60¢/10%

Bul Dog, \$24.00, 70%

Lave Bros. Co.: 70%

Parlor, Ball Bearing, \$1.00; Standard, \$3.15; No. 105, \$2.85;

New Model, \$2.80; New Cham- \$2.25

Barn Door, Standard 60¢/10%

Hinged net \$6.08

Covered 60¢/5%

Special 70¢/5%

Advance 55¢/10%

Cleveland 70¢/7 1/2%

Clipper, No. 75 60%

Crown 55¢/10%

Cyclone, No. 40 net \$6.50

Tandem, No. 50 net \$7.50

New York 55¢/10%

McKinney Mfg. Co.: 60¢/10%

No. 1, Special, \$15 60¢/10%

No. 2 Standard, \$18 60¢/10%

Hinged Hanger, \$15 50%

Meyers' Stayon Hangers 60%

Richards Mfg. Co.: 60%

Hangers, Nos. 47, 48, 147, 247, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 5

Hoes— Eye—
Scovill and Oval Pattern—
 60¢ 10¢ 60¢ 10¢ 10¢
Grub, list Feb. 23, 1899—
 70¢ 10¢ 70¢ 10¢ 10¢
D. & H. Scovill—
 70¢ 10¢ 70¢ 10¢ 10¢

Handled—
 NOTE.—Manufacturers are selling from the list of September 1, 1904, but many letters are still using list of August 1, 1899, or selling at net prices.

Cronk's Weeding, No. 1, \$2.00; No. 2, \$2.50
 Star Double Bit.....\$3.20
 Ft. Madison Cotton Hoe.....\$7.00
 Ft. Madison Crescent Cultivator Hoe.....\$7.00
 Ft. Madison Mattock Hoes.....\$7.00
 Regular Weight.....\$7.00
 Junior Size.....\$7.00
 Ft. Madison Sprouting Hoe.....\$7.00
 Ft. Madison Dixie Tobacco Hoe.....\$7.00
 Kretzinger's Cut Easy.....\$7.00
 Warren Hoe.....\$7.00
 W. & C. Ivanhoe.....\$7.00
 B. B. 6 in. Cultivator Hoe.....\$7.00
 B. B. 6 1/2 in. Cultivator Hoe.....\$7.00
 Acme Weeding.....\$7.00
 W. & C. Luning Shuffler Hoe.....\$7.00

Hoisting Apparatus—
 See Machines, Hoisting.

Holders— Bit—
 Angular, 1/2 doz. \$24.00.....\$45.10%

Door—
 Bardsley's, Iron, 40"; Brass and Bronze.....\$5.00
 Empire.....\$5.00
 Pullman.....\$5.00
 Superior.....\$5.00

File and Tool—
 Nicholson File Holders and File Handles.....\$3.75 10%

Fruit Jar—
 Triumph Fruit Jar Holder, 1/2 gross.....\$10.80
 1/2 doz. \$1.25

Trace and Rein—
 Fernald Double Trace Holder, 1/2 doz. \$1.25
 Dash Rein Holder, 1/2 doz. \$1.25

Hones—Razor—
 Pike Mfg. Co., Belgian, German and Swaty.....\$5.00

Hooks—Cast Iron—
 Bird Cage, Reading.....\$4.00
 Clothes Line, Reading.....\$4.00
 Coat and Hat, Reading.....\$4.00
 Coat and Hat, Stowell's.....\$4.00
 Coat and Hat, Wrightville.....\$4.00
 Harness, Reading.....\$4.00
 Harness, Stowell's.....\$4.00
 School House, Stowell's.....\$4.00

Wire—
 Belt.....\$8.00
 Wire C. & H. Hooks.....\$7.00 10%

Columbian Hdw. Co., Gem.....\$7.00 10%

Bradley Metal Clasp Wire, Coat and Hat.....\$7.00 10%

Parker Wire Goods Co., King.....\$7.00 10%

Western W. G. Co. Molding.....\$7.00 10%

Wire Goods Co., Chief, 70"; Crown, 75"; Czar, 65"; V. Brace, 75"; Czar Harness, 50 1/2 10%

Wrought Iron—
 Box, 6 in., per doz., \$1.00; 8 in., \$1.25; 10 in., \$1.50

Cotton.....\$1.05 10%

Wrought Staples, Hooks, &c.—See Wrought Goods

Miscellaneous—
 Hooks, Bench, see Stops, Bench.

Bush, Light, doz. \$5.75; Medium, \$6.35; Heavy, \$7.25

Grass, best, all sizes, per doz. \$3.00

Grass, common grades, all sizes, per doz. \$1.75

Whiffletree.....\$1.50 10%

Hooks and Eyes—
 Brass.....\$6.05 10%

Malleable Iron.....\$7.00 10%

Cover Mfg. Co. Gate and Scuttle Hooks.....\$4.00

Ft. Madison Cut-Easy Corn Hooks, 1/2 doz. \$3.25 net

Turner & Stanton Co. Cup and Shoulder.....\$8.00 10%

Bench Hooks—See Bench Stops.

Corn Hooks—See Knives, Corn.

Horse Nails—
 See Nails, Horse.

Horse Shoes—
 See Shoes, Horse.

Hose, Rubber—
 Garden Hose, 1/2-inch:

Competition.....\$8.00 10%

3-ply Guaranteed.....\$8.00 10%

4-ply Guaranteed.....\$8.00 10%

Cotton Garden, 1/2-in., coupled:

Low Grade.....\$8.00 10%

Fair Quality.....\$8.00 10%

Irons— Sad—
 From 1 to 10.....\$1.00 10%

B. B. Sad Irons.....\$1.00 10%

Mrs. Potts' cents per set:

No. 50 \$3.00 65

Jap'd Tops.....\$8.00 10%

Tin'd Tops.....\$8.00 10%

New England Pressing, 10.5¢ 10%

Pinking—
 Pinking Irons.....\$8.00 10%

Irons, Soldering
 See Copiers.

Jacks, Wagon—
 Covert Mfg. Co.:

Auto Screw.....\$3.00 10%

Lockport.....\$3.00 10%

Lane's Steel.....\$3.00 10%

Richards' Tiger Steel, No. 130.....\$3.00 10%

Smith & Hemenway Co.'s.....\$3.00 10%

Knives—
Butcher, Kitchen, &c.—

Poster Bros. Butcher, &c.....\$3.00 10%

Wilkinson Shear & Cutlery Co.....\$3.00 10%

Corn—
 Wilkinson Shear & Cutlery Co.,

Wilcox Brand Knives and Hooks.....\$3.00 10%

Withington Acme, 1/2 doz. \$2.65;

Dent, \$2.75; Adj. Serrated, \$2.20;

Serrated, \$2.10; Yankee No. 1, \$1.50;

Yankee No. 2, \$1.15.

Drawing—
 Standard List.....\$7.00 10%

C. E. Jennings & Co., Nos. 45, 46,

Jennings & Griffin, Nos. 41, 42,

Swan's.....\$6.00 10%

Watrous.....\$6.00 10%

L. & J. J. White.....\$6.00 10%

Hay and Straw—
 Serrated Edge, per doz. \$3.50 10%

Iwan's Sickle Edge.....\$9.50

Iwan's Serrated.....\$10.00

Mincing—
 Buffalo.....\$13.00

Miscellaneous—
 Farriers'.....\$3.00 10%

Wostenholm's.....\$3.00 10%

Knobs—
 Base, 2 1/2-inch, Birch, or Maple,

Rubber Tip.....\$1.25 10%

Carriage, Jap., all sizes.....\$4.00 10%

Door, Mineral.....\$6.50 10%

Door, Por. Jap'd.....\$7.00 10%

Door, Por. Nickel.....\$2.00 10%

Bardsley's Wood Door, Shutters, &c. 15%

Lacing, Leather—
 See Belting, Leather.

Ladders, Store, &c.—
 Allith Mfg. Co., Reliable.....\$5.00 10%

Lane's Store.....\$5.00 10%

Myers' Noiseless Store Ladders.....\$5.00 10%

Richards Mfg. Co.:

Improved Noiseless, No. 112.....\$5.00 10%

Climax Shelf, No. 113.....\$5.00 10%

Trolley, No. 109.....\$5.00 10%

Lades, Melting—
 L. & G. Mfg. Co. (low list).....\$2.00 10%

P. S. & W.....\$4.00 10%

Reading.....\$4.00 10%

Lanterns—Tubular—
 Regular, No. 0.....\$4.35 10%

Side Lift, No. 0.....\$4.60 10%

Hinge Globe, No. 0.....\$4.60 10%

Other Styles.....\$4.00 10%

Bull's Eye Police—
 3-inch.....\$4.25 10%

Lasts and Stands, Shoe—
 Stowell's Atlas, Malleable Iron.....\$5.00 10%

Stowell's Badger, Cast Iron.....\$5.00 10%

Latches—Thumb—
 Roggin's Latches, with screw.....\$3.00 10%

Door—
 Allith Mfg. Co., Reliable and Allegator, 50"; Reliable Cold Storage, 50%

Crouk & Carrier Mfg. Co., No. 101, 125.....\$2.00 10%

Richards' Bull Dog, Heavy, No. 125.....\$5.00 10%

Richards' Trump, No. 127.....\$5.00 10%

Stowell's Steel.....\$5.00 10%

Leaders, Cattle—
 Small.....\$2.00 10%

Covert Mfg. Co.:

Cotton, 45%; Hemp, 45%; Jute, 35%;

Sisal, 20%.

Leathers, Pump—
 See Pumps.

Lifters, Transom—
 R. & E.....\$1.00 10%

Lines—
 Wire Clothes, Nos. 18, 19, 20

100 feet.....\$2.25 10%

75 feet.....\$1.75 10%

75 feet.....\$1.75 10%

Samson Cordage Works:

Solid Braided Chalk, Nos. 0 to 3, 40%

Solid Braided Mason's.....\$3.00 10%

Silver Lake Braided Chalk, No. 0,

\$6.00; No. 1, \$6.50; No. 2, \$7.00; No. 3,

\$7.50; No. 4, \$8.00; No. 5, \$8.50;

Masons' Lines, Shade Cord, &c., 20%

White Cotton, No. 3 1/2, \$1.50; No. 4,

\$2.00; No. 4 1/2, \$2.50; Colors, No. 3 1/2,

\$1.75; No. 4, \$2.25; No. 4 1/2, \$2.75;

Linen, No. 3 1/2, \$2.50; No. 4, \$3.50;

No. 4 1/2, \$4.50.

Tent and Awning Lines: No. 5,

White Cotton, \$7.50; Drab Cotton,

\$8.50.

Clothes Lines, White Cotton: 50 ft.,

\$2.75; 60 ft., \$3.25; 70 ft., \$3.75; 75

ft., \$4.00; 80 ft., \$4.25; 90 ft., \$4.75;

100 ft., \$5.25.

Turner & Stanton Co.:

Solid Braided Chalk, Mason's and

Awning Lines.....\$4.00 10%

Clothes Lines, White Cotton.....\$2.00 10%

Shade Cord, Cotton or Linen.....\$2.00 10%

Locks— Cabinet—
 Cabinet Locks.....\$3.50 10%

Door Locks, Latches, &c.—
 NOTE.—Net Prices are very often made on these goods.

Reading Hardware Co.....\$4.00 10%

R. & E. Mfg. Co.....\$1.00 10%

Elevator—
 Stowell's.....\$5.00 10%

Padlocks—
 R. & E. Mfg. Co. Wrought Steel and

Brass.....\$7.50 10%

Sash, &c.—
 Ives' Patent:

Bronze and Brass, 55¢ 10%

60%; Iron, 60%; Window Ventilating,

40¢ 10%

Robinson Pat. Ventilating Sash Lock, 33%.

Pullman Patent Ventilating Lock, 35%.

Reading.....\$4.00 10%

Machines—Boring—
 Com. Up'r't, without Augers.....\$2.00 10%

Com. Ang'l'r, without Augers.....\$2.25 10%

Swan's Improved.....\$4.00 10%

Jennings, Nos. 1 and 4.....\$2.50 10%

Miller's Pails.....\$1.00 10%

Snell's, Upright, \$2.65; Angular, \$2.90

Corking—
 Reliance Invincible Hand Power.....\$18.00

Fence—
 Williams' Fence Machines.....\$5.50

Hoisting—
 Moore's Anti-Friction Chain Hoist.....\$3.00

Moore's Hand Hoist, with Lock.....\$2.00

Moore's Cyclon. High Speed Chain Hoist.....\$2.50

Ice Cutting—
 Chandler's.....\$12.50

Washing
 Boss Washing Machine Co.: Per doz.

Boss No. 1.....\$57.00

Boss Rotary.....\$57.00

Champion Rotary Banner No. 1.....\$57.00

Standard Champion No. 1.....\$50.00

Standard Perfection.....\$27.00

Cincinnati Square Western.....\$33.00

Uneda American, Round.....\$33.00

Maillets—
 Hickory.....\$5.00 10%

Lignum vitae.....\$5.00 10%

Timber's Hickory and Applewood.....\$5.00 10%

Mangers, Stable—
 Swett Iron Works.....\$5.00 10%

Mashers, Vegetable—
 Western W. G. Co., Potato.....\$6.00 10%

Mats, Door—
 Elastic Steel (W. G. Co.), new list.....\$5.00 10%

Keystone Wire Matting Co.:

Keystone.....\$5.00 10%

Ideal.....\$5.00 10%

Mattocks—
 See Picks and Mattocks.

Milk Cans—See Cans, Milk.

Mills, Coffee, &c.—
 Enterprise Mfg. Co.....\$2.00 10%

National list Jan. 1, 1902.....\$3.00 10%

Parker's Columbia & Victoria.....\$5.00 10%

Parker's Box and Side.....\$5.00 10%

Swift, Lane Bros. Co.....\$2.50 10%

Motors Water—
 Divine's Red Devil.....\$3.00 10%

Mowers, Lawn—
 NOTE.—Net prices are generally quoted

Cheapest.....\$1.85 10%

Cheap.....\$2.00 10%

Better Grade.....\$2.50 10%

High Grade.....\$4.50 10%

Continental.....\$6.00 10%

Great American.....\$7.00 10%

Great American Ball B'g, new list.....\$7.00 10%

Quaker City.....\$7.00 10%

Pennsylvania.....\$7.00 10%

Pennsylvania, Jr., Ball Bearing.....\$5.00 10%

Pennsylvania Golf.....\$5.00 10%

Pennsylvania Horse.....\$3.50 10%

Pennsylvania Pony.....\$4.50 10%

Granite State:

Style A, Low Wheel.....\$7.00 10%

Style B, Low Wheel.....\$7.00 10%

Style C, High Wheel, spld. disc't.....\$7.00 10%

Style D, High Wheel, spld. disc't.....\$7.00 10%

Philadelphia:

Style M, S

Pipe, Cast Iron Soil—
Standard, 2-6 in. 40¢@10¢5%
Extra Heavy, 2-6 in. 50¢@12¢5%
Fittings 60¢@10¢5%

Pipe, Merchant—
Consumers, Carloads.
Steel.
Bk. Galv. Bk. Galv.
1/4 & 1/2 in. 48 57 41
3/4 in. 60 52 59 41
1 in. 68 56 61 41
1 1/2 in. 72 62 66 56
2 to 12 in. 69 54 61 46

Pipe, Vitrified Sewer—
Carload lots.
Standard Pipe and Fittings, 3
to 24 in., f.o.b. factory:
First-class 82%
Second-class 85%
NOTE.—Market irregular.

Pipe, Stove—
Per 100 joints.
Edwards' Nested: C. L. L. C. L.
5 in., Standard Blue \$6.25 \$7.25
6 in., Standard Blue 6.75 7.75
7 in., Standard Blue 7.25 8.25
5 in., Royal Blue 7.00 8.00
6 in., Royal Blue 7.50 8.50
7 in., Royal Blue 8.50 9.50
Wheeling Corrugating Co.'s Nested:
5 in., Uniform Color \$6.15 \$7.15
6 in., Uniform Color 6.65 7.65
7 in., Uniform Color 7.65 8.65

Planes and Plane Irons—
Wood Planes—
Bench, first qual. 30¢@30¢10%
Bench, second qual. 40¢@40¢10%
Molding 25¢@25¢10%
Bailey's (Stanley R. & L. Co.) 35¢@35¢10%
Chapin-Stephens Co.:
Bench, First Quality 30%
Bench, Second Quality 25%
Colding and Miscellaneous 25%
Toy and German 30%
Union 60%
Iron Planes
Bailey's (Stanley R. & L. Co.) 35%
Chapin's Iron Planes 50¢@10%
Miscellaneous Planes (Stanley R. & L. Co.) 30¢@5%
Union 60%

Plane Irons—
Wood Bench Plane Irons, list
Dec. 12, '06. 25%
Buck Bros. 30%
Chapin-Stephens Co. 25%
Stanley R. & L. Co. 35%
Union 50%
L. & J. White 20¢@25%
Planters, Corn, Hand—
Kohler's Eclipse 1/2 doz. \$3.00

Plates—
Felloe 1/2 doz. \$4.44
Self-Sealing Pie Plates (R. M. Co.) 1/2 doz. \$2.00
Pliers and Nippers—
Button Pliers 75¢@75¢10%
Gas Burner, per doz., 5 in., \$1.25
@ \$1.30; 6 in., \$1.45 @ \$1.50.
Gas Pipe 7 8 10 12-in.
\$2.00 \$2.25 \$2.75 \$3.50
Acme Nippers 50¢@5%
Crank & Carrier Mfg. Co.:
American Button 60%
Improved Button 75¢@10%
Crank's 60%
No. 80 Linemen's 45%
Stub's Pattern 45%
Combination and others 33%
Heller's Farriers' Nippers, Pincers
and Tools 40¢@50¢@10¢5%
The Nettleton Mfg. Co. Reversible
Cutting Nippers 40%
P. S. & W. Timmers' Cutting Nip-
pers 40%
Wm. Schollhorn Co.:
Bernard, 33 1/2%; Elm City, 33 1/2%;
Paragon, 50%; Lodi, 50%
Swedish side, End and Diagonal Cut-
ting Pliers 60%
Utica Drop Forge & Tool Co.:
Pliers and Nippers, all kinds 40%
Vaughan & Rushnell Mfg. Co.:
Gas Burner, per doz., 5 in., \$2.50;
6 in., \$3.00;
Gas, per doz., 7 in., \$3.50; 8 in.,
\$3.75; 10 in., \$4.50.
Nippers, Horseshoers' Cutting, 40%
Hoof Paring 40%

Plumbs and Levels—
Chapin-Stephens Co.:
Plumbs and Levels 30¢@30¢10%
Chapin's Imp. Brass Cor. 40¢@40¢10%
Pocket Levels 30¢@30¢10%
Extension Sights 30¢@30¢10%
Machinists' Levels 40¢@40¢10%
Dinon's Plumbs and Levels 60¢@10%
Dinon's Pocket Levels 60¢@10%
Stanley R. & L. Co. 40%
Stanley's Duplex 30%
Woods' Extension 33 1/2%

Poachers, Egg—
Buffalo Steam Egg Poachers, 1/2 doz.,
No. 1, \$6.00; No. 2, \$9.00; No. 3,
\$1.00; No. 4, \$12.00 50%

Points, Glaziers—
Bulk and 1-lb. papers 1/2 lb. 10¢
1/4-lb. papers 1/2 lb. 10¢
1/4-lb. papers 1/2 lb. 10¢

Pokes, Animal—
Ft. Madison Hawkeye 1/2 doz. \$3.25
Ft. Madison Western 1/2 doz. \$3.50

Police Goods—
Manufacturers' Lists 25¢@25¢5%
Towns' 25%

Polish—Metal, Etc—
Glasbrite, No. 2, 5 lb can (powder),
each, \$1.25; 1/2 doz., \$12.00; No. 2, 10 lb
can (cake), each, \$2.50; 1/2 doz., \$24.00.
Prestoline Liquid, No. 1 (1 qt. pt.)
doz., \$3.00; No. 2 (1 qt. pt.), \$9.00.
Prestoline Paste 40%
George William Hoffman:
U. S. Metal Polish Paste, 3 oz.
boxes, 1/2 doz. 50¢; 1/2 gro. \$1.50;

1/2 lb boxes, 1/2 doz. \$1.25; 1 lb
boxes, 1/2 doz. \$2.25.
U. S. Liquid, 8 oz. cans, 1/2 doz.,
\$1.25.
Barkeepers' Friend Metal Polish, 1/2
doz., \$1.75.

Stove—
Black Eagle Benzine Paste, 5 lb cans,
1/2 doz. \$1.00.
Black Eagle Liquid, 1/2 pt. cans,
1/2 doz. 75¢.
Black Jack Paste, 1/2 lb cans, 1/2 doz. \$9.00.
Black Kid Paste, 5 lb cans, each, \$0.65.
Ladd's Black Beauty Liquid, per
100 tin. \$6.75.
Joseph Dixon's, 1/2 gr. \$5.75 10%
Dixon's Plumbago 1/2 lb 8¢
Fireside 1/2 gr. \$2.50
Gem, 1/2 gr. \$1.50 10%
Japanese 1/2 gr. \$3.50
Jet Black 1/2 gr. \$3.50
Peerless Iron Enamel, 10 oz. cans,
1/2 doz. \$1.50

Poppers, Corn—
1 qt. Square doz. \$0.88; gro. \$8.75
1 qt. Round doz. \$1.00; gro. \$10.00
1 1/2 qt. Square doz. \$1.10; gro. \$11.00
2 qt. Square doz. \$1.35; gro. \$13.50

**Post Hole and Tree Aug-
ers and Diggers—**
See also Diggers, Post Hole, &c.

Posts, Steel—
Steel Fence Post, each, 5 ft., 42¢;
6 ft., 46¢; 6 1/2 ft., 49¢.
Steel Hitching Posts each \$1.30

Potato Parers—
See Parers, Potato.

Pots, Glue—
Enamelled 35¢@10%
Tinned 30¢@10%

Powder—
In Canisters:
Duck, 1 lb. each 45¢
Fine Sporting, 1 lb. each 75¢
Rifle, 1/2 lb. each 15¢
Rifle, 1 lb. each 25¢
In Kegs:
12 1/2-lb. kegs \$3.50
25-lb. kegs \$4.50
King's Semi-Smokeless:
Keg (25 lb bulk) \$6.50
Half Keg (12 1/2 lb bulk) \$3.50
Quarter Keg (6 1/4 lb bulk) \$1.90
Case 24 (1 lb cans bulk) \$8.50
Half case (1 lb cans bulk) \$4.50
King's Smokeless:
Keg (25 lb bulk) \$12.00 \$15.00
Half Keg (12 1/2 lb bulk) 6.25 7.75
Quarter Keg (6 1/4 lb bulk) 3.25 4.00
Case 24 (1 lb cans bulk) 14.00 17.00
Half case 12 (1 lb c. bk.) 7.25 8.75
Robin Hood Smokeless Shot Gun 50¢@20%

Presses—
Fruit and Jelly 20¢@25%
Enterprise Mfg. Co. 20¢@25%
Seal Presses—
Morrill's No. 1, 1/2 doz., \$20.00 50%
Pruning Hooks and Shears
See Shears.
Pullers, Nail—
Cyclops 50%
Miller's Falls, No. 3, 1/2 doz. \$12.00.
No. 3 (small) 33 1/2¢@10%
Morrill's No. 1, Nail Puller, 1/2 doz. \$20.00.
Pearson No. 1, Cyclone Spike Puller,
each \$30.00 50%
Scranton Case Lots:
No. 2B (large) \$5.50
No. 2B (small) \$5.00
Smith & Hemenway Co.:
Diamond B, case lots, 1/2 doz., Large,
\$9.00; Small, \$7.50.
Giant No. 1, 1/2 doz., \$18; No. 1 1/2,
\$16.50; No. 3, \$15 33 1/2%
Staple Pullers, Utica and Davi-
son 1/2 doz. \$2.00.
Parrot Tack and St. Puller, 1/2 doz.,
75¢; 1/2 gro., \$6.00

Pulleys, Single Wheel—
Inch 1 1/4 1 1/2 2 3
Awining or Tackle 1 1/4 1 1/2 2 3
doz. \$0.30 .15 .60 1.05
Hay Fork, Sichel or Solid Eye,
doz., 4 in., \$1.25; 5 in., \$1.55
Inch 2 2 1/4 2 1/2
Hot House, doz. \$0.65 .85 1.20
Inch 1 1/4 1 1/2 1 3/4
Screw, doz. \$0.16 .19 .23 .30
Inch 1 1/4 1 1/2 1 3/4
Side, doz. \$0.25 .30 .55 .60
Inch 1 1/4 1 1/2 1 3/4

Stowell's:
Cutting or End, Anti-Friction 60¢@10%
Dumb Waiter, Anti-Friction 60¢@10%
Electric Light 60%
Side, Anti-Friction 60¢@10%
Sash Pulleys—
Common Frame; Square or
Round End, per doz, 1 1/4 and
2 in. 16¢@19¢
Auger Mortise, no Face Plate,
per doz., 1 1/4 and 2 in. 16¢@19¢
Acme, No. 35, 1 1/4 in., 18 1/2¢; 2 in., 20 1/2¢
Fox-All-Steel, Nos. 3 and 2, 2 in.
doz. 50%
Grand Rapids All Steel No. 35 50%
Ideal 70¢@5%
Niagara, No. 25, 1 1/4 in., 18 1/2¢; 2
in., 20 1/2¢
No. 26, Tron, 1 1/4 in., 18 1/2¢; 2 in., 19 1/2¢
Star, No. 26, 1 1/4 in., 18 1/2¢; 2 in., 20 1/2¢
Tackle Blocks—See Blocks.

Pumps—
Cistern 60%
Pitcher Spout 75¢@75¢10%
Wood Pumps, Tubing, &c. 45¢@50%
Barnes Dbl. Acting (low list) 40¢@5%
Barnes Pitcher Spout 75¢@5%
Contractors' Rubber Diaphragm
2 R. & L. Block Co. \$16.00
Daisy Spray Pump 1/2 doz. \$6.50
Flint & Walling's Fast Mail Hand
(low list) 50%
Flint & Walling's Fast Mail (low
list) 50%
Flint & Walling's Tight Top Pitcher
75¢@10%

National Specialty Mfg. Co. Measur-
ing, Nos. 2, \$6.00; 3, \$5.50 30%
Myers' Pumps (low list) 45%
Myers' Power Pumps 45%
Myers' Spray Pumps 45%

Pump Leathers—
Plunger and Lower Valve—Per
gro.:
Inch 2 2 1/4 2 1/2 2 3/4
Inch \$3.30 3.60 3.85 4.10 4.40
Plunger Cup Leathers—Per 100:
Inch 2 1/2 3 3 1/2 4
Inch \$2.75 3.85 5.00 6.00

Punches—
Saddlers' or Drive, good doz. 50¢@75¢
Spring, single tube, good qual-
ity 1.75¢@2.00
Revolving (4 tubes) doz. \$3.50@3.75

Bemis & Call Co.'s Cast St'l Drive 50%
Morrill's Nos. 1A, 1A, 1A, 1B, 1C,
15.00 50%
Hercules, 1 die, each \$5.00 50%
Niagara Hollow Punches 40%
Niagara Solid Punches 55¢@10%
Wm. Schollhorn Co.:
Paragon, 50%; Lodi 50%
Timmers' Hollow, P. S. & W. Co. 33 1/2%
Timmers' Solid, P. S. & W. Co. 1/2
doz., \$1.44 50%

Rail—Barn Door, &c.—
Sliding Door, Painted Iron 2 1/2¢@2 1/4¢

Sliding Door, Wrought Brass,
1 1/2 in., 1/2, 3/4 30%
Alth. Mfg. Co.: Reliable Hanger
Track 50%
Crank's:
Double Braced Steel Rail 1/2 ft. 34¢
O. N. T. Rail \$3.12
Griffin's:
xxx, 100 ft., 1 x 3-16 in., \$3.25;
1 1/2 x 3-16 in., \$3.75;
Hinged Hanger, 100 ft., 1 x 3-16
in., \$3.50; 1 1/2 x 3-16 in., \$4.00.
Lane's:
Hinged Track, 100 ft. \$3.45
O. N. T., 100 ft., 1 in., \$3.00; 1 1/2
in., \$3.45; 1 1/2 in., \$4.00.
Standard, 1 1/2 in. 100 ft. \$4.00
Lawrence Bros.:
1 x 3-16 in., 100 ft., \$7.50; 1 1/2 x
3-16 in., \$8.75 55¢@1 1/4%
McKinney's:
Hinged Hanger Rail, 1/2 ft., 1 1/2 50%
None Better 1/2 ft. 34¢
Standard 1/2 ft. 4¢
Myers' Stayon Track 60¢@5%
Kitchin's:
Common, 1 x 3-16 in., \$3.00; 1 1/2 x
3-16, \$3.25; 1 1/2 x 3-16, \$3.50.
Special Hinged Hanger Rail 60¢@10%
Lag Screw Rail, No. 65 50%
Gauge Trolley Track, 1/2 ft., No. 31,
9¢; No. 32, 14¢; No. 33, 20¢
No. 30 60¢@10%
No. 31, 10¢; No. 32, 14¢; No. 33, 20¢; 64,
\$1.00; 45, \$3.25; 46, \$3.50; 49, No. 1,
\$3.25; 49, No. 2, \$3.50.

Stowell's:
Cast Rail 1/2 ft. 24¢
Steel Rail, Plain 25%
Wrought Bracket, 1 3-16 in. 1/2 ft. 3¢
Wrought Bracket, 1 1/2 x 5-16 1/2 ft. 1¢
Sweet's Hylor, 1/2 ft. 11¢ 60%
P. L. B. Steel Rail 100 ft. \$3.00
No. 0, 1 x 3-16 100 ft. \$3.00
Rakes—
NOTE.—Many goods are sold
at net prices.
Fort Madison Red Head Lawn \$3.25
Fort Madison Blue Head Lawn \$2.70
Jackson Lawn, 29 and 30 teeth, 1/2
doz., net \$1.25
Cronk's:
Steel Garden: Champion, 75%;
Ideal, 80%; Victor 80¢@25%
Queen City Lawn, 1/2 doz., 20 teeth \$2.50; 24, \$3.00 net
Anticlog Lawn, 1/2 doz. \$1.00
Malleable Garden 10¢@10%
Ideal Steel Garden, 1/2 doz., 12 teeth,
\$5.00; 14, \$6.00; 16, \$8.00 80%
Kohler's:
Lawn Queen, 20-teeth 1/2 doz. \$3.15
Lawn Queen, 24-teeth 1/2 doz. \$3.25
Paragon, 20-teeth 1/2 doz. \$2.70
Paragon, 24-teeth 1/2 doz. \$2.75
Steel Garden, 14-teeth 1/2 doz. \$2.40
Malleable Garden, 14-teeth 1/2 doz. \$2.00@2.25

Rasps, Horse—
Diagon's 75%
Heller Bros. 70¢@50¢75¢10¢5%
Liveright Bros.' Gold Medal 70¢@10¢75%
McCaffrey's American Standard 60¢@10¢5%
New Nicholson 70¢@10¢75%
See also Files.

Razors—
Liana Bo-ras-le 60%
Fox Razors, 1/2 doz., No. 42, \$2.00; No. 44, \$3.00; No. 82, Platina \$25.00.
Red Devil 50%
Silberstein:
Carbo Magnetic, \$21.00; Griffin, No. 65, \$13.50; Griffin, No. 60, \$12.00;
all other Razors, 40%
Safety Razors—
Kampfe Bros., 25%; Star Interchange-
able, 25%; Star Safety Corn, 25%
Silberstein 40%

Reels, Fishing—
Bendix:
M. 6, Q. 6, A. 6, B. 6, M. 6, M. 16,
M. 18, A. 18, B. 18, 4008, Rubber
Popolo, Nickled Popolo 20%
Aluminum, German Silv., Bronze, 25%
1240 N., 124 N. 20%
3001 N., 6 N., 6 RM, G. 9 25%
4 N. 6 PN, 21 N. 6 PN, 3024 N.
334¢; 334¢; 3304 PN, 334¢; 3024 N.
334¢; 3024 N. 334¢; 3024 PN.
334¢; 302 N. 334¢
995 PN, 3001 N., 971 PN 25%
5009 PN, 5009 N 20%

Competitor, 102 P., 102 PN, 202 P.,
202 PN, 102 P.L., 202 P.L.,
304 P., 304 PN, 00304 P., 00304 PN, 33 1/2%
Registers—List July 1, 1903.
Japanned, Electroplated and
Bronzed 66 2/3%
White Porcelain Enamel 60%
Solid Brass or Bronze Metal,
10¢@10%

Revolvers—
Single Action 95¢@1.00
Double Action, except 4 1/2 cal. \$1.80
Double Action, 4 1/2 caliber \$2.00
Automatic \$3.00
Hammerless \$4.50

Riddles, Hardware Grade
16 in. per doz. \$2.50@2.75
17 in. per doz. \$2.75@3.00
18 in. per doz. \$3.00@3.25

Rings and Rings—
Bull Rings—
Steel \$0.70 0.75 0.80 doz.
Copper \$1.15 1.35 1.75 doz.
Rea's Improved Self-Piercing, 1/2 doz.,
Copper, 2 in., \$1.25; 2 1/2 in., \$1.50;
3 in., \$1.75.

Hog Rings and Rings—
Hill's Rings, gro. boxes \$4.00@4.50
Hill's Rings, Gray Iron doz. 50¢@55¢
Hill's Rings, Malleable Iron doz. 70¢@75¢
Blair's Rings per gro. \$4.75@5.25
Blair's Rings per doz. \$0.60@.65
Brown's Rings per gro. \$5.00@5.50
Brown's Rings per doz. \$0.60@.65

Rivets and Burrs—
Copper 33 1/3¢@35%
Carriage, Coopers', Timmers, &c.:
Black 70¢@10%
Metallic Tinned 70%
Bifurcated and Tubular—
Assorted in Boxes.
Bifurcated, per doz. boxes, paste-
board boxes, 23¢@25¢; Tin boxes,
29¢@32¢.

Rollers—
Acme, Stowell's Anti-Friction 50%
Cronk's Stay, No. 50 \$1.00
Cronk's Brunkerhoff No. 55, \$0.80;
No. 56, \$0.75; No. 60 \$0.75
Lane's Stay 40%
Richards' Stay:
Handy Adj. and Reversible No. 53, 75¢
O. K. Adj. and Reversible No. 58, 50¢
Lag Screw, Nos. 55 and 57 50%
Underwriters', Nos. 59, 60 50%
Favorite, No. 54 50%
Stowell's Barn Door Stay 1/2 doz. \$1.00
Stowell's Anti-Friction 50%
Screw and Spike Stay 1/2 doz. 65¢
Hinge Adjustable Stay 1/2 doz. 90¢

Rope—
Manila, 7-16 in. diam. and larger:
Pure 1/2 lb. 13¢@13 1/2¢
Sisal, 7-16 in. diam. and larger:
Pure 1/2 lb. 9 1/4¢
Sisal, 7-16 in. diam. and larger:
No. 2 quality 1/2 lb. 7¢@8¢
Sisal, Hay, Hide and Bale
Ropes, Medium and Coarse:
Mixed 1/2 lb. 7¢@8¢
Pure 1/2 lb. 9 1/4¢
Sisal, Tarred, Medium Lath
Yarn, Coarse and Untarred:
Mixed 1/2 lb. 7 1/4¢
Pure 1/2 lb. 8¢
Cotton Rope:
Best, 1/4-in. and larger 18¢@20¢
Medium, 1/4-in. and larger 16¢@17¢
Common, 1/4-in. and larger 10¢
In coils, 1/4¢ advance.
Jute Rope:
Thread, No. 1, 1/4-in. & up, 1/2 lb. 9¢
Thread, No. 2, 1/4-in. & up, 1/2 lb. 8 1/2¢
Wire Rope—
Galvanized 37 1/2¢@2 1/4%
Plain 15¢@2 1/2%

Ropes, Hammock—
Covert Mfg. Co.:
Jute, 35%; Sisal 20%

Rules
Boxwood 60¢@60¢10%
Ivory 55¢@10¢35¢10¢5%
Chapin-Stephens Co.:
Boxwood 60%
Flexfold 40%
Ivory 25¢@25¢10%
Miscellaneous 55¢@55¢10%
Stephens' Combination 55%
Stationers' 10%
Keuffel & Esser Co.:
Folding, Wood 35¢@10%
Folding, Steel 33 1/4¢@10%
Lufkin's Steel 50¢@10%
Lufkin's Lumber 60%
Stanley R. & L. Co.:
Boxwood 60%
Ivory 45%
Miscellaneous 60%
Zig Zag 40%
Zig Zag, Pin Joint 42 1/2%
Orson Nut Co.:
Boxwood 60¢@60¢10%
Ivory 35¢@10¢35¢10¢10%

Sash Balances—
See Balance, Sash.
Sash Locks—See Locks, Sash.
Sash Weights—
See Weights, Sash.

Sausage Stuffers or Fillers
See Stuffers or Fillers, Sausage.

Saw Frames—
See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Saws—

Atkins:	
Circular	45%
Band	50@50&10
Butcher Saws	50
Cross Cuts	35
One-Man Cross Cut	50
Narrow Cross Cut	50
Hand, Rip and Panel	35&5
Miter Box and Compass	40
Mulay, Mill and Drag	45
Wood Saws	40&10
Chapin-Stephens Co.:	
Turning Saws and Frames	30&30&10
Diamond Saw & Stamping Works:	
Sterling Kitchen Saws	50&10&10
Diston's:	
Circular, Solid and Ins'ted Tooth	50
Band, 2 to 18 in. wide	60
Hand, 1/4 to 1 1/2	60
Crosscuts	50
Narrow Crosscuts	50
Mulay, Mill and Drag	50
Framed Woodsaws	25
Woodsaw Blades	25
Woodsaw Rods, Tinned	15
Hand Saws, Nos. 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100	25
Hand Saws, Nos. 7, 10, 12, 14, 16, 18, 20, 22, 24, 26, 28, 30, 32, 34, 36, 38, 40, 42, 44, 46, 48, 50, 52, 54, 56, 58, 60, 62, 64, 66, 68, 70, 72, 74, 76, 78, 80, 82, 84, 86, 88, 90, 92, 94, 96, 98, 100	25
9, 00, Combination	35&40
Compass, Key Hole, &c.	25
Butcher Saws and Blades	30
C. E. Jennings & Co.'s:	
Back Saws	10%
Butcher Saws	25&10
Compass and Key Hole Saws	33&10
Framed Wood Saws	25&10
Hand Saws	12%
Wood Saw Blades	33&10
Miters Rails:	
Butcher Saws	15&10
Star Saw Blades	15&10
Massachusetts Saw Works:	
Victor Kitchen Saws	40&10&50
Butcher Saws	35&40
Peace & Richardson's Hand Saws	30
Simonds:	
Circular Saws	45%
Crescent Ground Cross Cut Saws	30
One-Man Cross Cuts	40
Gang Mill, Mulay and Drag Saws	45
Hand Saws	35
Back Saws	25&10
Butcher Saws	35&10
Hand Saws	25&10
Hand Saws, Bay State Brand	45
Compass, Key Hole, &c.	25&10
Wheeler, Madden & Clemens Mfg. Co.'s Cross Cut Saws	50
Hack Saw Blades and Frames—	
Atkins' Hack Saw Blades A & A	25
Diston's:	
Concave Blades	25
Keystone Blades	35
Hack Saw Frames	30
Simonds File Co.	35
C. E. Jennings & Co.'s:	
Hack Saw Frames, Nos. 175, 180	100
Hack Saws, Nos. 175, 180, complete	40&10
Goodell's Hack Saw Blades	40&10
Griffin's Hack Saw Blades	35&10
Star Hack Saws and Blades	15&10
Sterling Hack Saw Blades	30&10&5
Sterling Hack Saw Frames	30&10&10
Sterling Power Hack Saw Machines, each, No. 1, \$25.00; No. 2, \$30.00	10
Victor Hack Saw Blades	25
Victor Hack Saw Frames	40
Scroll—	
Barnes, No. 7, \$15	25
Barnes' Scroll Saw Blades	40
Barnes' Velocipede Power Scroll Saw, without boring attachment, \$18	25
with boring attachment, \$20	25
Lester, complete, \$10.00	15&10
Rogers, complete, \$5.50 and \$4.00	15&10
Scales—	
Family, Turnbull's	50@50&10
Counter:	
Hatch, Platform, 1/4 oz. to 4 lbs.	50
Two Platforms, 1/4 oz. to 8 lbs.	50
Union Platform, Plain	1.70@1.90
Union Platform, Stpd.	1.85@2.15
Chatillon's:	
Eureka	25
Favorite	40
Crocker's Trip	50
Chicago Scale Co.:	
The Little Detective	25 lbs 50
Union or Family No. 2	50
Portable Platform (reduced list)	50
Wagon or Stock (reduced list)	50
The Standard Portables	45
The Standard R. R. and on	50&10
Scrapers—	
Box, 1 handle	2.00@2.25
Box, 2 handle	2.50@2.80
Ship, Light, \$2.00; Heavy, \$1.50	2.00
Adjustable Box Scraper (S. R. & L. Co.)	60
Chapin-Stephens Co., Box	30@30&10
Scraps—Bench and Hand	
Reich, Iron, doz. 1 in.	22.50
2 1/2; 1 1/2, \$3.00@3.25; 1 1/4, \$3.50@3.75	25
Reich, Wood	20@20&10
Hand, Wood	20@20&10
R. Bliss Mfg. Co., Hand	20&5@20&10
Chapin-Stephens Co., Hand	20
Coach, Lag and Hand Rail—	
Lag, Cone Point, list Oct. 1	75
Coach, Gilet Point, list Oct. 1	75
Hand Rail, list Jan. 1	75
Jack Screws—	
Standard List	70&10@75
Millers Falls	50&10&10
P. S. & W.	50
Swett Iron Works	70&75
Machine—	
List Jan. 1, '08:	
Flat or Round Head, Iron, Brass or Bronze	60@50&10

Fillister Head, Iron, Brass or Bronze	40@40&10
Set and Cap—	
Set (Iron)	75&10&7 1/2
Set (Steel), net advance over Iron	25
Sq. Hd. Cap	70&10&7 1/2
Hex. Hd. Cap	70&10&7 1/2
Rd. Hd. Cap	50&7 1/2
Fillister Hd. Cap	60&7 1/2
Wood—	
List July 23, 1907:	
Flat Head, Iron	87 1/2@85
Round Head, Iron	85&5
Flat Head, Brass	80&5
Round Head, Brass	77 1/2@75
Flat Head, Bronze	75&5
Round Head, Bronze	72 1/2@70
Drive Screws	87 1/2@85
Scroll Saws—	
See Saws, Scroll.	
Scythes—	
Per doz.	
Grass, No. 1, Plain	\$6.25@6.75
Clipper, Bronzed Webb	\$6.50@7.00
No. 3 Clipper, Pol'd Webb	\$6.75@7.25
No. 6 Clipper and Solid Steel	\$7.00@7.50
Bush, Weed and Bramble, No. 2	\$6.50@7.00
Grain, No. 1	\$3.25@3.75
Bronzed Webb, No. 1	\$3.50@4.00
Nos. 3 and 4 Clipper, Grain	\$3.75@4.25
Solid Steel, No. 6	\$9.25@9.75
Seeders, Raisin—	
Enterprise	25@30
Sets—Awl and Tool—	
Fray's Adj. Tool Handles, Nos. 1, \$12; 2, \$18; 3, \$12; 4, \$9; 5, \$7	
Millers Falls Adj. Tool Handles, No. 1, \$12; No. 4, \$12; No. 5, \$18	15&10
Garden Tool Sets—	
Ft. Madison Three Flows, Hoe, Rake and Shovel	3 doz sets \$9.00
Sets, Nail—	
Octagon	gro. \$3.50@3.75
Buck Bros.	27 1/2
Cannon's Diamond Point, 3/4 gro. \$12	40&10
Mayhew's	3/4 gro. \$12
Snell's Corrugated, Cup Pt.	40&10
Snell's Knurled, Cup Pt.	40&10
Victor Knurled, Cup Pt.	40&10
Rivet—	
Regular list	75@75&10
Saw—	
Atkins:	
Criterion	40%
Adjustable	40%
Diston's Star, Monarch and Triumph	30
Morrill's No. 1	\$15.00
Nos. 3 and 4, Cross Cut	\$20.00
No. 5, Mill	\$30.00
Nos. 10, 11, 12	\$15.00
No. 1 Old Style	\$10.00
Special	\$16.25
Giant Iroyal Cross Cut	3 doz. \$4.00
Royal, Hand	3 doz. \$4.50
Taintor Positive	3 doz. \$4.15
Shaving—	
Fox Shaving Sets, No. 30	3 doz. net, \$24.00
Smith & Hemenway Co.'s	30
Sharpeners, Knife—	
Chicago Wheel & Mfg. Co.	70
Pike Mfg. Co.:	
Fast Cut Pocket Knife Hones	3 doz. \$1.50
Mounted Kitchen Sand Stone	3 doz. \$1.50
Natural Grit Carving Knife Hones, 3 doz.	\$3.00
Quick Cut Emery Carving Knife Hones, 3 doz.	\$1.50
Quick Edge Pocket Knife Hones, 3 doz.	\$2.50
Skate—	
Smith & Hemenway Co., Eureka	20
Shaves, Spoke—	
Iron	doz. \$1.10@1.25
Wood	doz. \$1.75@2.25
Bailey's (Stanley R. & L. Co.)	45
Razor Edge (Stanley R. & L. Co.)	55
Iron, 50%; Wood	55
Chapin-Stephens Co.	30@30&10
Goodell's 3/4 doz. \$9.00	15&10
Wood's P1 and P2	50
Shears—	
Cast Iron	7 8 9 in.
Best	\$16.00 18.00 20.00 gro.
Good	\$13.00 15.00 17.00 gro.
Cheap	\$5.00 6.00 7.00 gro.
Straight Trimmers, &c.	
Best quality Jap.	70@70&10
Best quality, Nickel	60@60&10
Fair quality, Jap.	80@80&5
Fair quality, Nickel	75@75&10
Tailors' Shears	40@40&10
Acme Cast Shears	40@40&5
Heinrich's Tailor's Shears	10
Wilkinson Shear & Cutlery Co.:	
Sheep, 1900 list	30&10&5
Grass or Mule	50&10
Horse	50&10
Tinners' Snips—	
Steel Blades	20&5@20&10
Steel Loid Blades	40&10@50
Forged Handles, Steel Blades, Berlin	50
Heinrich's Snips	40
Jennings & Griffin Mfg. Co.'s 6 1/4 in	33&4
Niagara Snips	40
P. S. & W. Forged Handles	20
Pruning Shears—	
Cronk's Hand Shears	33&4
Cronk's Wood Handle Shears	33&4
Diston's Combined Pruning Hook and Saw, 3/4 doz. \$18.00	25
Diston's Pruning Hook only, 3 doz.	\$12.00
John T. Henry Mfg. Co.:	
Pruning Shears, all grades	40
P. S. & W. Co.	30
Wilkinson Shear & Cutlery Co.	60&10

Lawn and Border, Wilcut Brand	60&10
Sheaves—Sliding Door—	
Stowell's Anti-Friction	50
Reading	40
R. & E. list	15
Wrightsville Hatfield Pattern	87 1/2
Sliding Shutter—	
Reading list	40
R. & E. list	19
Shells—Shells, Empty—	
Brass Shells, Empty:	
Climax, 10 and 12 gauge	65&10
Club, Rival, 65&5; First Quality	60&5
Paper Shells, Empty:	
New Rapid, 10, 12, 16 and 20 gauge	25&10
Climax, 10 and 12 gauge; Acme, 10, 12, 16 and 20 gauge; Ideal, 10, 12, 16 and 20 gauge; Leader grade	25&5
Union, League, 12 and 12 gauge; Rival Grade	25
New Climax, Deliance, 10, 12, 14, 16 and 20 gauge; Climax, 14, 16 and 20 gauge; Repeater Grade, 20	20&5
Challenge, Monarch, 10, 12, 16 and 20 gauge; League, Union, 14, 16 and 20 gauge; Repeater Grade, 20	20
Expert, 10, 12, 16 and 20 gauge	33&5
Robin Hood, Low Brass	20&5
Robin Hood, High Brass	30&5
Indian, for Black Powder	25&5
Shells, Loaded—	
Loaded with Black Powder	40
Loaded with Smokeless Powder, medium grade	40&5
Loaded with Smokeless Powder, high grade	40&10
Robin Hood:	
Smokeless Robin Hood, Low Brass	40&10
Smokeless Comets, High Brass	40&10&5
Indian, Black Powder	40&5
Union Metallic Cartridge Co.:	
New Club, Black Powders	40
Nitro Club, Smokeless Powders	40&5
Winchester:	
Smokeless Repeater Grade	40&5
Smokeless Leader Grade	40&10
Black Powder	40
Shingles, Metal—Per Sq.	
Edwards Mfg. Co.:	
Painted	
Galv.	
14 x 20	\$4.25 \$6.00
10 x 14	4.50 6.25
7 x 10	4.75 6.50
Wheeling Corrugating Co.:	
Dixie, 14 x 20 in.	\$4.25 \$5.50
Dixie, 10 x 14 in.	4.50 6.00
Dixie, 7 x 10 in.	5.00 6.75
Shoes, Horse, Mule, &c.—	
F.o.b. Pittsburgh:	
Iron	per keg \$4.10
Steel	per keg \$3.85
Burden's, all sizes	per keg \$3.90
Shot—	
25-lb. bag	
Drop, up to B.	\$1.95
Drop, B and larger	2.20
Buck	2.20
Chilled	2.20
Dust	2.40
Shovels and Spades—	
Association List, Nov. 15, 1902	40
Avery Stamping Co.	40
Snow Shovels—	
Long Handle	\$2.75@3.50
Wood and Mall, D. Handle	\$3.25@3.50
Sieves and Sifters—	
Hunter's Imitation	gro. \$9.50@10.00
Hunter's Genuine	per gro. \$12.00@12.50
Buffalo Metallic Sifted, R. M. Co., 3/4 gr.	14&10
1 1/2 gr.	13.20
2 gr.	13.50
3 gr.	14.00
Sieves, Seamless Metallic—	
Per dozen:	
Mesh	14 16 18 20
Iron Wire	\$1.05 1.05 1.10 1.20
Tinned Wire	\$1.15 1.15 1.20 1.30
Sieves, Wooden Rim—	
Nested, 10, 11 and 12 inch	
Mesh 18, Nested	doz. \$9.90@9.95
Mesh 20, Nested	doz. \$1.00@1.05
Mesh 24, Nested	doz. \$1.30@1.40
Sinks, Cast Iron—	
Painted, Standard list:	
12 x 12 to 22 x 36 in.	60
20 x 40 to 24 x 60 in.	50
24 x 60 to 24 x 120 in.	30
Barnes' low list:	
Up to and including 20 x 36 in.	50
20 x 40 to 24 x 60 in.	45
NOTE—There is not entire uniformity in lists used by jobbers.	
Skirts, Wagon—	
Cast Iron	70@75&10
Steel	40@45
Slates, School—	
Factory Shipments.	
"D" Slates	50@50&10
Eureka, Unexcelled Noiseless	60&5
Victor A. Noiseless	60&5
Slaw Cutters—See Cutters.	
Snaps, Harness—	
German	40@40&10
Covert Mfg. Co.:	
Dorby, 25%; Yankee, 30&2; Yankee	
High Grade, 40%; Trojan	40
Jockey	25
Ovalida Community:	
Harness Snaps, 1 inch	60&5
Swivel Snaps	60
Swivels	50
Snaths—	
Scythe	50
Snips, Tinners—See Shears.	

Spoons and Forks—	
Silver Plated—	
Good Quality.....	50¢10@60.65%
Cheap.....	60@60&10
International Silver Co.:	
1847 Rogers Bros., 40&10; Rogers & Hamilton.....	50&10%
Rogers & Bros., William Rogers.....	50&10%
Eagle Brand.....	50&10%
Anchor Rogers Brand.....	60%
Wm. Rogers & Son.....	60&10%
Miscellaneous—	
German Silver.....	60@60.65%
Cattaraugus Cutlery Co.:	
Seneca Silver.....	50%
Tinned Iron—	
Tea.....	per gro. 45@50¢
Tables.....	per gro. \$0.50@1.00
Springs—Door—	
Bardsley's Spring and Check.....	40%
Chicago (Coil).....	40&10
Gem (Coil).....	30%
Pullman (Coil).....	35%
Reliance (Coil).....	40&10
Star (Coil).....	30%
Torrey's Rod, 3/8 in.....	3 doz. \$1.10
Carriage, Wagon, &c.	
1/4 in. and wider:	
Black.....	\$4.75@5.00
Half Bright.....	\$4.75@5.00
Bright.....	\$5.25@5.50
Painted Seat Springs:	
1 1/2 x 2 x 26.....	per pr. 47@49¢
1 1/2 x 3 x 28.....	per pr. 69@71¢
Sprinklers, Lawn—	
Enterprise.....	25@30%
Philadelphia No. 1, 3/4 doz. \$12; No. 2, \$15; No. 3, \$20.....	30%
Pfeuger & Henger Mfg. Co.:	
Cactus, 65&5; Japanese, 70&5; Nationals, 60&5.....	
Squares	
Nickel plated.....	List Jan. 5, 1900.
Steel and Iron.....	75¢—
Rosewood Hdt. Try Square and T-Bevels.....	60¢10&10@70
Iron Hdt. Try Squares and T-Bevels.....	40¢10@40¢10&10
Diston's Try Squares and Bevels, Rosewood Handle, 60&10; Iron Stock and Bevel.....	15%
Winterbottom's Try and Miter, No. 1, 35%; No. 2.....	45%
Squeezers, Lemon	
Wood, Common, gro., No. 0, \$5.25@5.50; No. 1, \$6.25@6.50.....	
Wood, Porcelain Lined:	
Cheap.....	doz. \$1.00
Good Grade.....	doz. \$1.25
Tinned Iron.....	doz. \$0.75@1.25
Iron, Porcelain Lined.....	doz. \$1.75
Staples—	
Barbed Blind.....	1b. 6@6 1/4
Electricians' Association list:	
Fence Staples, Plain, \$2.50; Galvanized.....	\$3.55
Poultry Netting Staples.....	per lb. 3 1/4@3 1/4
Steels, Butchers'—	
Dick's.....	30%
Poster Bros.....	30%
C. & A. Hoffmann's.....	30%
Steelyards—	
.....	30@30&10
Stocks and Dies—	
Blacksmiths'.....	50@30&10%
Curtis Reversible Ratchet Die Stock.....	25%
Derby Screw Plates.....	25%
Green River.....	25%
Lightning Screw Plate.....	25%
Little Glat.....	25%
Reece's New Screw Plates.....	25%
Stoners, Cherry	
Enterprise.....	25@30%
Stones—Oil, &c.	
Chicago Wheel & Mfg. Co., 1901 list:	
Gem Oil, Double Grit.....	65%
Gem Oil, Single or Double Grit.....	65%
Gem Slips.....	65%
Gem Razor Hones.....	50%
Pike Mfg. Co., 1901 list:	
Arkansas St. No. 1, 3 to 5 1/2 in.....	42.50
Arkansas St. No. 1, 5 1/2 to 8 in.....	42.50
Arkansas Slips No. 1.....	44.00
Lily White Washita, 4 to 8 in.....	90
Rosy Red Washita, 4 to 8 in.....	90
Washita St., Extra, 4 to 8 in.....	90
Washita St., No. 1, 4 to 8 in.....	90
Washita St., No. 2, 4 to 8 in.....	90
Lily White Slips.....	90
Rosy Red Slips.....	90
Washita Slips, Extra.....	90
Washita Slips, No. 1.....	70
Washita Slips, No. 2.....	40
India Oil Stones (entire list).....	35%
Quickcut Emery and Corundum	
Stone, Double Grit.....	35%
Quickcut Emery and Corundum	
Stone, Double Grit.....	35%
Quickcut Emery Rubbing Bricks.....	35%
Poston No. 1, 1 1/2" lar. 8" dia.....	35%
Washita No. 8, 1 1/2" dia.....	35%
Axe Stones (all kinds).....	35%
Turkey Oil Stones, Extra.....	50
8 in.....	50
Queer Creek Stones, 4 to 8 in.....	20
Queer Creek Slips.....	20
Sand.....	16
Scythe Stones	
Chicago Wheel & Mfg. Co.:	
Gem, 9 gro., 10 in., \$8.00; 12 in., \$10.80.....	
Norton Alundum Scythe Stones:	
Less than 10 groas loose.....	30 gro. \$4.00
Lots of 10 groas or more.....	30 gro. \$4.50
Private:	
Black Diamond S. B., 9 gro.....	\$12.00
Lamolle S. B., 9 gro.....	\$11.00
White Mountain S. B., 9 gro.....	\$9.00
Green Mountain S. B., 9 gro.....	\$8.00
Extra Indian Pond S. B., 9 gro.....	\$7.50
No. 1 Indian Pond S. B., 9 gro.....	\$7.00
Indian Pond S. B., 9 gro.....	\$6.50
Leader Red End S. B., 9 gro.....	\$4.50
Quick Cut Emery.....	30 gro. \$10.00
Pure Corundum.....	30 gro. \$18.00
Crescent.....	\$7.50
Emery Scythe Rifles, 2 Coat.....	\$7.00
Emery Scythe Rifles, 3 Coat.....	\$7.50
Emery Scythe Rifles, 4 Coat.....	\$8.00
Balance of 1901 list 35%.....	

Electro (Artificial), $\frac{1}{2}$ gro., \$12.00	33%
Lightning (Artificial), $\frac{1}{2}$ gro., \$18.00	33%

Stoppers, Bottle—

Victor Bottle Stoppers— $\frac{1}{2}$ gro. \$9.00	
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Stops—Bench—

Millers Falls, doz., No. 1, \$10.00	50%
Morrill's, No. 2, \$12.50	50%

Door—

Chapin-Stephens Co., doz. \$10.00	10%
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Plane—

Chapin-Stephens Co., doz. \$10.00	20%
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Straps—Box—

Cary's Universal, case lots, 20 & 10 & 10%	
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Stretchers, Carpet—

Cust Iron, Steel Points, doz. \$6.00	10%
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Socket—

Bullard, doz. \$1.00	
Excelsior Stretcher and Tack Hammer Combined, doz. \$6.00	20%

Woven Fence—

Franklin, ca. \$3.75	
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Strops, Razor—

Star Diagonal Strop, doz. \$2.50	25%
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Stuffers, Sausage—

Enterprise Mfg. Co., doz. \$2.50	7%
National Specialty Co., list Jan. 1, 1902	30%

Sweepers, Carpet—

Bissell Carpet Sweeper Co., doz. \$36.00	
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Superba, Crotch Mahogany, \$33.00	
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Triumph, Fancy Venetian, \$30.00	
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Parlor Queen, Figured Rosewood, \$29.00	
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Elite, Hungarian Ash, \$27.00	
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American Queen, Figured Mahogany, \$27.00	
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Ideal, Bird's-Eye Maple, \$25.00	
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Standard, Nickel, \$22.00	
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Grand Rapids, Nickel, \$21.00	
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Japan, \$19.00	
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Crown Jewel, Nickel, \$19.00	
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Crystal, Glass Top, \$19.00	
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Grand, 17 in. wide, \$19.00	
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Club, 24 in. wide, \$19.00	
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Hall, 28 in. wide, \$19.00	
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National Sweeper Co., doz. \$120.00	
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Louis XV, Roller Bearing, Gold Plated, \$120.00	
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Hepplewhite, Roller Bearing, Silver Plated, \$120.00	
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Sheraton, Roller Bearing, N'kel, \$120.00	
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Ye Mission, Roller Bearing, Oxidized Copper, \$120.00	
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Transparent, Roller Bearing, Fire Glass Top, Nickel, \$120.00	
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National Queen, Roller Bearing, \$120.00	
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Fancy Venetian, Roller Bearing, \$120.00	
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Loyal, Roller Bearing, Venetian, \$120.00	
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Nickel, \$120.00	
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Triple Medal, Roller Bearing, \$120.00	
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Nickel, \$120.00	
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Monarch, Roller Bearing, N'kel, \$120.00	
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Monarch, Roller Bearing, Jap. \$120.00	
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Perpetual, Regular B'rs, Jap. \$120.00	
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Monarch Extra (17 in. case), Roller Bearing, \$120.00	
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Monarch Extra (17 in. case), Roller Bearing, Japanned, \$120.00	
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Auditorium (28 in. case), Roller Bearing, Nickel, \$120.00	
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Mammoth (30 in. case), Roller Bearing, Nickel, \$120.00	
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NOTE.—Rebates: 50c per dozen on three-dozen lots; \$1 per dozen on five-dozen lots; \$2 per dozen on ten-dozen lots; \$1.50 per dozen on twenty-five-dozen lots.	
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Streator Metal Stamping Co., \$15.00	
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Eureka Japanned, doz. \$15.00	
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Model B, Sanitaire, doz. \$25.00	
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Model A, Sterling, doz. \$25.00	
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Model B, Sterling, Nickel, doz. \$25.00	
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Model B, Sterling, Japanned, doz. \$25.00	
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Model C, Sterling, doz. \$25.00	
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Model D, Sterling, doz. \$25.00	
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Model E, Sterling, doz. \$25.00	
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Model F, Sterling, doz. \$25.00	
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Model G, Sterling, doz. \$25.00	
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Model H, Sterling, doz. \$25.00	
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Model I, Sterling, doz. \$25.00	
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Model J, Sterling, doz. \$25.00	
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Model K, Sterling, doz. \$25.00	
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Model L, Sterling, doz. \$25.00	
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Model M, Sterling, doz. \$25.00	
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Model N, Sterling, doz. \$25.00	
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Model O, Sterling, doz. \$25.00	
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Model P, Sterling, doz. \$25.00	
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Model Q, Sterling, doz. \$25.00	
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Model R, Sterling, doz. \$25.00	
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Model S, Sterling, doz. \$25.00	
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Model T, Sterling, doz. \$25.00	
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Model U, Sterling, doz. \$25.00	
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Model V, Sterling, doz. \$25.00	
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Model W, Sterling, doz. \$25.00	
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Model X, Sterling, doz. \$25.00	
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Model Y, Sterling, doz. \$25.00	
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Model Z, Sterling, doz. \$25.00	
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Model AA, Sterling, doz. \$25.00	
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Model AB, Sterling, doz. \$25.00	
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Model AC, Sterling, doz. \$25.00	
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Model AD, Sterling, doz. \$25.00	
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Model AE, Sterling, doz. \$25.00	
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Model AF, Sterling, doz. \$25.00	
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Model AG, Sterling, doz. \$25.00	
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Model AH, Sterling, doz. \$25.00	
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Model AI, Sterling, doz. \$25.00	
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Model AJ, Sterling, doz. \$25.00	
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Model AK, Sterling, doz. \$25.00	
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Keuffel & Esser Co.:

Favorite, Ass Skin, 40 & 10 & 50%	
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Favorite, Duck and Leather, 30 & 10 & 50%	
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Metallic and Steel, lower list, 35 & 5%	
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35 & 5%; Pocket, 35 & 5%	
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Lufkin's Skin, 40 & 10 & 50%	
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Metallic, 30 & 10 & 50%	
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Patent Bend, Leather, 25 & 5 & 10%	
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Pocket, 40 & 10 & 50%	
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Steel, 35 & 5 & 10%	
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Wiebusch & Hilger: 35 & 5 & 10%	
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Chesterman's Metallic, No. 34L, etc., 25%	
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Chesterman's Steel, No. 1038L, etc., 35%	
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Teeth, Harrow— 35%	
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Steel Harrow Teeth, plain or headed, 1/2-inch and larger, per 100 lbs. \$2.75 @ \$3.00	
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Thermometers— 80 & 10 @ 80 & 10 & 5%	
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Ties, Bale—Steel Wire— 80 & 10 & 5%	
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Single Loop, 80 & 10 & 5%	
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Monitor, Cross Head, do. 70 & 2 1/2%	
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Brick Ties— 25 & 10%	
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Tinners' Shears, &c.— 25%	
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See Shears, Tinners', &c.	
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Tinware— 25%	
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Stamped, Japanned and Pieced, sold very generally at net prices.	
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Tire Benders, Upsetters, &c. See Benders and Upsetters, Tire.	
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Tools—Coopers'— 20 & 20 & 5%	
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L. & I. J. White, 20 & 20 & 5%	
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Myers' Hay Tools, 45%	
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Stowell's Hay Carriers, 50%; Hay Forks, 50%; Fork Pulleys, 50%.	
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Miniature— 25%	
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Smith & Hemenway Co.'s, David, son, 25%	
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Atkins' Cross Cut Saw Tools, 35 & 5%	
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Simonds' Improved, 25%	
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Simonds' Crescent, 25%	
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Ship— 25%	
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L. & I. J. White, 25%	
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Transom Lifters— 25%	
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See Lifters, Transom.	
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Traps—Fly— 12%	
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Balloon, Globe or Acme, doz. \$1.15 @ \$1.25; gro. \$11.50 @ \$12.00	
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Harper, Champion or Paragon, doz. \$1.25 @ \$1.40; gro. \$13.00 @ \$13.50	
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Game— 70 & 10%	
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Imitation Onocida, 70 & 10%	
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Newhouse, 70 & 10%	
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Hawley & Norton, 70 & 10%	
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Victor, 70 & 10%	
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Onocida Community Jump, 50%	
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Mouse and Rat— 12%	
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Mouse, Wood, Choker, doz. holes 12%	
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Mouse, Round or Square Wire, doz. 85 @ 90%	
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Marty French Rat and Mouse Traps (Genuine):	
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No. 1, Rat, doz., \$13.25; case of 24, \$11.50 doz.	
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No. 3, Rat, doz., \$6.50; case of 50, \$5.75 doz.	
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No. 3 1/2, Rat, doz., \$5.25; case of 50, \$4.75 doz.	
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No. 4, Mouse, doz., \$3.85; case of 150, \$3.00 doz.	
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No. 5, Mouse, doz., \$3.00; case of 150, \$2.25 doz.	
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Trimmers, Spoke— 50%	
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Wood's E I, 50%	
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Trowels— 25%	
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Distortion and Pointing, 25%	
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Distortion Plastering, 25%	
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Distortion "Standard Brand" and Garder Trowels, 30%	
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Kohler's Steel Garden Trowels, doz. \$1.80; 6 in., \$6.00.	
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Never-Break Steel Garden Trowels, doz. \$1.80.	
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Rose Brick and Plastering, doz. \$6.00.	
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Woodrough & McParlin, Plastering, 25%	
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Trucks, Warehouse, &c.— 50%	
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B. & L. Block Co., 50%	
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New York Pattern, 50%	
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Western Pattern, 50%	
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Handy Trucks, doz. \$18.00	
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Grocery, doz. \$15.00	
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Daisy Store Trucks, Improved Pattern, doz. \$15.00	
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McKinney Trucks, each \$10.00	
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Model Store Trucks, doz. \$18.50	
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Tubs, Wash— 50%	
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M'f'g's list, price per gross.	
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No. 0 1 2 3	
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Galvanized, 80 & 10 & 50%	
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Galvanized Wash Tubs (R. M. Co.):	
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No. 1 2 3 10 20 30	
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Per doz., net \$5.70 6.30 7.20 6.40 7.20 8.10	
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Twine, Miscellaneous— 50%	
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Flax Twine:	
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No. 9,
